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PETROLEUM.

NEW AND CURIOUS DETAILS OF OLEAGINOUS HISTORY.

THE GLOBE A HUGE OIL KETTLE BOILING OVER.

While our contemporaries, big and little, daily and "weekly" are racking their brains to find out all about the ancient and modern history of Petroleum, we by our far more intimate knowledge of Greasian annals, and our profounder researches in the lore of latter times, are enabled to present our oil-readers with some very striking, novel, and curious details on the subject that have not hitherto been given to the American public.

Going back to the very earliest period of human endeavor which has been at all clearly described to us, we find that substances cognate (in the character of their deposit) with petroleum were quite well known and very extensively used. It is by no means uninteresting to refer to some of these, since their consideration will lead us gradually and naturally onward to the history of "rock oil" itself. First among these is bituminous asphaltum, and here it is probable that we are suggesting sources of wealth to whole nations in the modern day. The Babylonians used this product, which was found in vast quantities throughout the East, for the construction of their cities. The prodigious walls of the majestic capital of Queen Semiramis, crowned with gardens, and seventy-two feet high —the historian Rollin extravagantly says two hundred! —inclosing Babylon, owed their solidity to this substance. Diodorus Siculus and Herodotus both say that they were built of large bricks, cemented with a thick and glutinous oily fluid which issued from the earth. This secured them much better than any species of mortar, and after a time, became even more solid and durable than the brick and stone it held together. Even at the present day are still to be seen some of the imperishable structures, thus made to last for a thousand years.

Near to the ruins of Bagdad, in ancient Chaldea, stands the famous Tower of Ackerouf, a contemporary of the Tower of Babel, cemented with the Assyrian oily product. In other cases, the bituminous layers are found whole and good, although the stony superstructure has crumbled away with time. The French writer, Jobard, in his excellent work on the "New Inventions recently shown at the World Fairs," informs us that the pitts of bitumen, or petroleum—so he calls it—from which the cement for the Tower of Babel was procured, have been discovered, and are yielding copiously to this day.

Kerr, Porter and other modern travelers to Assyria, state that in many places bituminous and naphtha wells exist, and in the remains of Ackerkouf, the very reeds mixed with this material are still preserved, although the brick and stone work has fallen almost into dust. Then we discover a new quality of the utmost importance within the range of this wonderful product. In several of the Swiss cantons and in the French department of the Ain, are many similar deposits. Experiments were made with them in the last century, but owing to lack of sufficient knowledge and perseverance did not succeed. Voltaire, in his Philosophical Dictionary, states that the roofs of two pavilions beside one of the gates of Geneva, were coated with it as a protection against the damp, but the sun melted the coating, and the mine from which the article had been taken was abandoned. Later, however, the bottoms and sides of water-tanks were usefully covered with a mixture of it, compounded with resinous pitch, and water-pipes were coated in a similar manner, both in Switzerland and England.

Having thus traced petroleum, in one of its connections, let us now turn to another indication no less curious. China, the land of every thing, old and new, at once arrests our attention. The great traveler, Abbe Huc, gives a literally glowing description of the natural gas found issuing from the soil in various parts of the "celestial empire." Every rich Chinese in the regions where the product is discovered, if he knows nothing else, knows how to bore his own fire-well, as he graphically calls it. It is often terrible work, as he has frequently to perforate the surface to a depth of 1,500 or 2,000 feet; but John Chinaman is a patient fellow, and he seldom fails. He uses a long tube, about six inches in diameter, and by means of some very odd machinery, bores on until he reaches the volcanic cavities below. Then rushes forth the inflammable gas in a huge jet, that leaps like a black arrow hundreds of feet into the air, and is mastered at no little expense of difficulty and danger. The least touch of flame and an awful accident ensues! A noted Catholic missionary, Monseigneur Imbert, who was, in 1832, assigned to the province of Slo-Tchouch, celebrated for its fine wells, and is quoted by the great Humbolt in his "Fragments of Geology" describes a catastrophe of this kind that occured at the Tsee-Lieon-Tsing (well flowing of itself) in the great oil and gas-regions of China. It caught fire and in a twinkling a frightful explosion was heard, followed by a shock of earthquake.

"The flame," says the narrator, "which was two feet in height, flitted about without burning anything. Four men volunteered to risk their lives in endeavoring to arrest it. They cast a large stone on the mouth of the well; but it was instantly hurled far into the air. Three of the men were burned—the fourth one only escaping by almost a miracle. Neither water nor earth would extinguish the flame, until, at length, after two weeks of incessant labor, a sufficient quantity of of water was conveyed to the adjacent heights, where it was collected in a little lake, and suddenly let loose in one volume on the well, with success.

When the mouth of these well has been properly secured, the gas can be conducted to any quarter through tubes of bamboo, and, once lit, it burns with a steady bluish and dark reddish flame, about four inches in height and one in diameter. It so continues day and night until artificially extinguished. The light is heavy, but sufficient for ordinary purposes. Monseigneur Imbert also describes the uses to which this gas is put in the province of Kia-Ting-Tan, about two hundred and fifty leagues from Canton. There the wells are very numerous, and there gas is used to light the great salt mines, which also abound in that district. The reader will perceive that we are coming right upon petroleum—the same combination of saline deposits, inflammable gas and rock oil being found in this country. One foot below the surface of the ground, upon the four sides, or faces of the well are inserted four enormous bamboo tubes, which carry the fire beneath the boilers. Each boiler has its bamboo tube or fire-conducter, at the extremity of which is an earthenware tip about six inches long, and an orifice in the centre about one inch in diameter. This tip keeps the bamboo from burning. Other tubes, leading to the outside, illuminate great halls and chambers of the workshops. It is impossible to utilize all the flame, and the excess is conducted to the outer air through immense chimneys, above which leap long tongues of fire. The surface of the adjacent ground is thus made very hot, and even burns the feet. In the very depth of January, the workmen are all half naked, wearing only a short pair of drawers. The flame of this gas produces no smoke; but a strong smell of bitumen can be perceived for six miles around. The flame is dark red, like that of coal, and does not cling close to the end of the tubes, as would that of an ordinary lamp; but hovers at the height of two inches above it. In the winter time, the poor, in order to warm themselves, dig round cavities in the sand a foot deep. A dozen of them then crouch about it, and then with a handful of lighted straw, set fire to the cavity, and thus warm themselves as long as they wish. When they see fit, they fill up the hollow with sand, and so extinguish the flames.

What a blessing if we had a few "cavities" in our parks for everybody's benefit, on these cold nights! Indeed, in this very State, near the village of Fredonia, about two miles from the shore of Lake Erie, we have, or very recently had similar phenomena. The rapid little creek, known as Canadaway, so says an account written in 1830, was covered with bubbles which were found to contain highly inflammable carbonic hydrogen gas supposed to rise from some bed of bituminous coal. The small gasometer placed near it, collected eighty cubic feet of gas in two hours' time. It was during the demolition of an old mill in 1827 that this product was first noticed, and a hole about an inch and a half in diameter bored in a rock on the bank of the stream, yielding any quantity of gas, which was collected by a company, and formerly distributed to the Fredonians at a dollar and a half yearly, per burner. Why are they not looking for Petroleum?

These bituminous gases have been utilized of latter years in nearly all the coal-mining districts of our country and England.

In France, one Jean Tardin, a physician of Tournon, gave to the world, as early as 1618, a curious and now very rare work, entitled "Natural History of the Burning Fountain near Grenoble, with an Inquiry into its Causes and Principles, and an Ample Treatise on the Subterranean Fires." Tardin went to work, enlightened by his own investigations, and after trying various substances, at length placed coal in a close vessel over a slow fire, and so obtained the vaporous exhalations which is our ordinary gas! And now, following out this experiment, we reach what we deem to be the real theory of the petroleum deposit! viz: that our vast beds of anthracite coal are but the residuum, or coke-beds of what was once bituminous coal whence in the vast laboratory of Nature—her immeasurable retorts heated and tended by the Almighty Hand itself—the gas and the oil have been extracted. That oil is petroleum, and when it cannot exude through the sur

face of the earth of its own motion, but has to be obtained by boring, the gas precedes it in its first gushing forth! We find that Mr. Robert C. Totten, of Pittsburgh, a gentleman of distinguished scientific attainments, also accepts this theory in an article recently published by the Commercial of that city.

Tardin's experiments were followed by those of Thomas Shirley, who, in 1667, tested the contents of the Burning Well, so called, near Wigan, in Lancashire, England, which he found burned like oil. He was succeeded by the Rev. John Clayton, who wrote a singular letter to Robert Boyle "concerning the spirit of coals," and therein states that he had seen a a ditch, where "the water burned like brandy." The country people around boiled eggs and even meats in it. This letter was written previously to 1691, and is quoted in the Philosophical Transactions of 1739, on pages 59 to 61 of the 41st volume. Clayton's autograph is still to be seen in the British Museum.

With one more paragraph devoted to the heralds of Petroleum, we shall dismiss this peculiar part of our subject. In Oriental Georgia, near to Bakhon, in the place known as the Atesch Gah or Dwelling of Fire, are found wells and pits of gas and naphtha used by the weavers of that country for heat and light. In Hungary, in the "circle" of Marmarosch, a gallery in the salt-mine of Szalina suddendy gave vent some years ago to a stream of bituminous gas, now used to illuminate the mine; and in Belgium similar incidents have occurred at Lege, at Warmes, and near to Charleroy. Van Nooth and Van Campen add to the narrations we have already given from China, by the description they offer of the fire-wells in the city of Xen-Si.

From the traces we thus find in bitumen, naphtha, and inflammable carbonic gas, in the most diverse and widely-separated quarters of the globe, we are irresistibly led to infer that the interior of our planet is one huge laboratory, in which the various carboniferous deposits are being separated into oil (petroleum), and the gases that precede or accompany it, and that the lapse of time required by a far vaster population than the earth can now boast, to consume the internal accumulations already existing, would be infinitely more than enough to have replaced them by fresh filterings, from the surface, of carbonic matter, the result of both animal and vegetable decay.

The next conclusion is that, as the general supply must be inexhaustible, and as on our continent have been found the freshest, purest, and most copious deposits of this wondrous fluid, the United States of America have in it alone a source of comfort and wealth for ages upon ages to come.

In it, with it, and about it are found, either separately or united, all the other bituminous products, and while it can be used for fuel it can be converted into gas, thus forming a sort of magic circle, giving light and heat all around the periphery of its fantastic trans formations.

It is something to know that a cargo of petroleum may descend a river, or cross a lake or ocean, in a vessel propelled by steam it has generated, acting upon an engine it lubricates, and directed by an engineer who may grease his hair, anoint his body, perfume his clothing, enrich his food, rub his bruises, freshen his liver, and waterproof his boots with the same article.

A full table of petroleum exportations just compiled, reveals the following statistics:

	1863. Gallons.	1864. Gallons.
New York	19,547,604	21,283,499
Philadelphia	5,595,738	7,762,476
Boston	2,049,431	1,696,307
Baltimore	922,211	915,366
Portland	342,682	70,730
	28,457,766	31,728,878
Increase in 1864		3,271,102

The demand from abroad for the opening year is enormous, with no adequate supply as yet upon the seaboard; while the home consumption has increased far beyond the most eager anticipations for so short a time. The immediate effect of this condition of things has been greatly to increase the profits of the substantial working companies and enhance the value of their shares. Hence, quite a mass of the well established concerns have already declared, and are now announcing, handsome dividends.

The progress of discovery and mining is still increasingly onward. The State of Missouri has loomed up out of the midst of war and foray during the past week with the peaceful but odoriferous mark of petroleum on her bosom, several counties reporting the treasure.

Colorado Territory responds to the roll-call, and echoes it unctuously onward to the Pacific. Near Cannon City, in a deep valley at the base of the Rocky Mountains, wells and springs of surprising value have been opened. Indiana, Ohio, and Pennsylvania are really and literally breaking out all over "in new spots," and here in good "Old York State" we have petroleum to right of us, petroleum to left of us (what is left of us), petroleum over us, under us, around us—petroleum—petroleum everywhere, "and not a drop to drink!" Petroleum offices, petroleum exchanges, petroleum boards, gas machines, boring machines (as though there were not always plenty of these) meet one in *esse*, in placards, at every turn, and the oil itself is bubbling up in every direction. At Jamestown, Chatauqua County, and at Whitestone, near Utica, "they've struck ile," and started heavy stock companies, and at Poughkeepsie the Fishkill Company is sinking an oil shaft square into the middle of High street, in that city. As Squeers said, "Here's richness!" with a vengeance.

In fine, the excitement and the activity on this subject are universal and intense. Fabulous "profits," huge "dividends" splendid "strikes" are all we hear about. Monitors go up (above torpedoes!) gold goes down, but oil overspreads the entire circumference.

A lady in a Broadway jewelry palace excited the envy of another who stood near her by the magnificence of her purchases.

"Shoddy, I suppose!" whispers the envious dame to a friend beside her.

"No! Ma'am!" replied the purchaser overhearing the remark, "Petroleum, Ma'am, Pe-tro-le-um!"—*Sunday Mercury.*

EXTRAORDINARY DISCOVERIES OF PETROLEUM IN CALIFORNIA.

We extract the following passages from a statement based on a report of Professor Silliman, recently published, upon the occurrence of petroleum oil in certain parts of California:

"The occurrence of fluid inflammable substances upon the coast of Santa Barbara, in Southern California, has been known since 1792; but little importance has been attached to it until very recently, when the development of the oil region of Pennsylvania has shown the immense value of the great natural repositories of petroleum, and directed attention to other localities in which it is found. One of the most extraordinary of these repositories is that near the coast of California, about three hundred and twenty miles south from San Francisco, where the usual indications of petroleum were so great that parties, on learning the fact, at once proceeded to make explorations.

The importance of these indications of a great petroleum region was not appreciated by the early explorers and settlers in California from the Atlantic States; and none suspected that the oil of this district was destined to add another product to the resources of the State, unequalled, perhaps, in value even by that of her wonderful mines of the precious metals. Even the indications of the vast quantities of petroleum on the surface have been regarded by the owners of the estates as a detriment to their property, inasmuch as they caused a loss of their live stock, in which the value of their ranches chiefly consisted, by the animals becoming drowned in the great pools of petroleum. These exudations have the effect to render barren tracts of land a mile square, more or less, in the midst of a fine agricultural district.

The first attempt to apply this petroleum to useful purposes was made about two years since, by Mr. Gilbert, who, understanding its nature, and finding it in abundance issuing from many springs upon the property, put up for himself a refinery upon a small scale. He drew the crude oil chiefly from one of the great wells, from which he obtained four hundred barrels without apparently diminishing the supply. In the summer of 1864 Professor Silliman examined this locality, and in a letter, dated at Buenaventury, Santa Barbara County, July 2, 1864, he writes:

The property covers an area of 18,000 (eighteen thousand) acres in one body, on which are at present at least twenty natural oil wells, some of them of the largest size. The oil is struggling to the surface at every available point, and is running away down the rivers for miles and miles. Artesian wells will be fruitful along a double line of thirteen miles, say, for at least twenty-five miles in linear extent. The ranch is an old Spanish grant, of four leagues of land, lately confirmed and of perfect title. It has, as I said, about eighteen thousand acres in it, of the finest land watered by four rivers, and measuring in a right line in all nearly thirteen miles. As a ranch it is a splendid estate, but its value is its almost fabulous wealth in the best of oil.

The report of Professor Silliman fully confirms his first impressions, and presents more complete details of the wonderful resources of this property. According to his advice and that of other competent judges in California, arrangements were made to purchase the estate by parties in New York, in October, 1864. But before effecting this, it was deemed expedient to obtain from Professor Silliman a decided statement that the oil was, in his opinion, fully equal to that of Oil Creek, Pennsylvania, and from able counsel in San Francisco, a professional opinion as to the validity of the title. Instructions were accordingly sent to close the purchase, provided the oil was pronounced by Professor Silliman equal to the best Pennsylvania oil, and the title perfect. Professor Silliman telegraphed confirming his letter above quoted, and the title being pronounced by counsel undoubted, the property was purchased and is now vested in trustees:—Charles H. Russell and Henry Alexander.

PETROLEUM, PARAFFINE, OR MINERAL OIL.

With the object of testing the merits and capabilities of this substance as fuel, experiments on an extensive scale have been lately made at Woolwick Dockyard. The plan under trial is simply to burn the petroleum through a porous material, which is placed in an iron chamber, dipped into a water-vessel, also of iron. The oil admitted into the chamber soddens the porous material, and rises by capillary attraction. The surface than catches fire and burns rapidly as long as the oil is supplied. The effect of the flame is said to be so great, that with the small apparatus, which is only 2 ft. superficial area, and affixed to a boiler, the oil has been utilized so as to be equal for steam purposes to five tons of coal. The objection to the use of this oil beyond its cost, seems to be the fear of explosion. A curious property of petroleum is said to have been discovered by Dr. Decaisne, of Antwerp, who announces that it instantaneously destroys that parasitical insect of the *Acarus* family which produces the human skin disease called itch; that all that is requisite is simply to apply the oil without even rubbing, and that the mere vapour of the oil will disinfect clothes tainted with the virus. If all this be true, doubtless there are other skin diseases thus curable; for more than one skin disease originates in parasitical causes. It may also turn out to be useful in gardens. —*London Builder*

PETROLEUM IN VENEZUELA AND NEW GRENADA.

The two most northern nationalities in South America, which border on the Caribbean Sea, contain immense reservoirs of mineral pitch, from which gush fountains of petroleum. Copious streams of petroleum

occur on the borders of Maracaybo lake. This lake is 350 miles in circumference; near its margin is a mine of asphaltum, "the bituminous vapors of which" (says McCulloch's Geographical Gazetteer) "are so inflammable that, during the night, phosphoric fire are continually seen, which in their effect resemble lightning. They are more frequent during times of great heat than in cool weather, and go by the local name of the "Lantern of Maracaybo."

According to M. Bousingault, the naturalist, who also published a dissertation on bitumen, there are great basins of petroleum in the valley of Magdalena river, on the northern shores of New Grenada and in Peru and Venezuela, near the coast.

Alex. Von Humboldt, in his researches and travels, 1699, says he observed at Cape Cirial, and near Cape de la Brea, a stream of naptha issuing from mica slate. He also observed that the product of springs in the large West India islands covered a large surface of the sea.—*U. S. R. R. Register.*

PETROLEUM IN CUBA.

In the early history of Cuba, it is recorded that Havana was originally named by the early visitors and settlers, Carine—"for there we careened our ships, and we pitched them with the natural tar which we found lying in abundance upon the shores of this beautiful bay."

Petroleum springs are in number near Havana, rising from fissures in the serpentine rocks at Guanabacoa, and have been known for two centuries. Allan's Manual of Mineralogy says the whole of Cuba is impregnated with bituminous matter to a surprising degree, in cells and cavities in the rocks. Note this paragraph, credited to Essai Politique sur l'Isle de Cuba: "Petroleum leaks out in some, indeed in numberless places in this delightful island, from amidst the fissures of the serpentine, and perhaps has deeply seated sources. We are acquainted with abundant springs of petroleum between Holguin and Mayari, at the eastern end of the island, and also possess notices of others in the direction of Santiago de Cuba.

The entire series of the West India and Windward islands present phenomena of petroleum springs, beds or veins of asphaltum, and accummulations of mineral pitch.—*U. S. R. R. Register.*

EUROPEAN PETROLEUM.

At the Wallachian Petroleum Company meeting held in London, England, an elaborate report on the Petroleum districts in Wallachia, prepared by Prof. Chev. G. Capellini, was submitted, from which it appears that petroleum in Wallachia is found only in tertiary formations (which is not the case in America), associated with deposits of salt, sulphur, and gypsum. Prof. Capellini considers that in all the tertiary formations of the Carpathians petroleum is to be found, but the deposits by far the richest and most important refer to the Miocene period, the richness and abundance of which deposits depend, in inverse ratio, upon their relative antiquity. He regards as the most favorable localities for exploitation of petroleum those where the deposits belonging to the upper Miocene form the small valleys lying at right angles to the tributary streams of the Danube. These observations induce him to admit the existence of petroleum, or at least of strata simply bituminous, in many parts of Wallachia, where up to the present no researches have been made, and where even its existence is unsuspected. These positions may be explored later, and meanwhile they serve to show what a vast field for enterprise is afforded by the Wallachian petroleum, its magnitude being such as to preclude the possibility of the clashing of interests of the various companies now exploring it.

From the Professor's report it appears that unmistakable traces of petroleum have been found in several places on the company's property. At Lower Scortzeni there are several wells, some of which are productive, and might be rendered more so. A kind of wax, or condensed bitumen, is found near Scortzeni, in the alluvial formation, which he believes to have originated in previous petroleum sources. He thinks this wax is identical with ozokerite, already found in Moldavia, and well known to mineralogist. This wax does not exist on the company's territory, but an analysis might show that its working would be profitable. At Poeeni Nou there are eight wells sunk, in nearly all of which water accompanies the petroleum, No. 6 being the only one richly productive. At Gura Draganassa some wells at the bottom of the valley give hopes. In his remarks on the most desirable means of conducting the works and rendering the enterpri-e as lucrative as possible, he recommends that during the bad season operations should be diminished, and works scarcely commenced should be suspended, proceeding only with those of immediate promise, and that only on the most economical principles. In the next place, instead of exporting crude petroleum, it would be exceedingly profitable to refine the same before it leaves the Principalities. Not only would this diminish the expense of freight, but also a great quantity could be sold in Greece, Italy, and elsewhere, and that at a price lower than is now current in those markets.

MNING.

DISCOVERY OF EMERY IN CHESTER, MASS.

By Charles T. Jackson, M. D., Geologist and State Assayer.

It has been said, in England, that "a good mine of emery is worth more to a manufacturing people than many mines of gold." Such being the case it affords me great pleasure to be able to announce the discovery of an inexhaustible bed of the best emery in the world in the middle of the State of Massachusetts, in Chester, Hampden county, quite near to the Western Railroad, which with its ramifications leads to the largest armories and manufactories of metallic articles in this and the adjacent States.

For more than two years, the existence of important beds of magnetic iron ore, originally discovered by Dr. H. S. Lucas, has been known, and endeavors were made by that gentleman to organise a company for the purpose of smelting these ores. In consequence of this agitation, I was employed by John B. Taft, Esq., on the 19th of August, 1863, to examine the locality and to make report of my results to him.

On examination of my specimens of minerals, after returning to Boston, and my notes for sectional profiles of the rocky strata containing the iron ore, I found that the minerals, margarite and chloritoid, in talcose, hornblende, and mica slate rocks, indicated the occurrence of emery, the association of the rocks and minerals being identical with conditions known to exist in the localities of emery in Asia Minor.

I therefore called the attention of the owners of the property to these facts, and directed search to be made for emery, and that every mineral resembling it should be sent to me for examination. Little attention was paid to this prediction at the time, and not until I had invited Dr. Lucas, who resides in Chester, by personal representations and solicitations, to make the required search, the characters of emery being fully described to him.

On his return to Chester he soon learned that the miners were complaining of the great hardness of the supposed iron ore, and that no less than forty drills were dulled in boring a single hole for blasting. He then sent me pieces of this hard rock, in the belief that it was the emery I had predicted. On examination it was found to scratch quartz and topaz readily, and to have all the properties of emery; a chemical analysis proved it to be identical with the emery of Naxos.

The owners, resident in Boston, being notified of this discovery, went with me to the locality on the 11th of October last, when a full exploration of the premises was made. There are several large beds of rich magnetic iron ore at this locality, and the emery being magnetic (as it always is) had caused it to be mistaken for magnetic iron ore, and many tons of it had been smelted with the carbonate of iron and hematite in the Berkshire county iron furnaces, without a suspicion, notwithstanding its refractory nature, that the ore was emery, with only a small admixture of iron ore.

The principal bed of emery is seen at the immediate base of the South Mountain, where it is four feet wide, and cuts through the mountain near its summit, at an angle of 70° inclination of dip to the eastward. Its course is N. 20° E., S. 20° W., and its known extent four miles. Near the summit of the mountain the bed expands to more than 10 feet in width, and in some places is even 17 feet wide.

The alternations of rock in two sections are as follows, beginning to the eastward:

1. a, Mica slate; b, 15 ft. soapstone or talcose rock; 2 feet crystallized talc; d, talcose slate; e, 1 ,ft. granular quartz; f, chlorite slate; g, 4 ft. Emery; h, chloritoid and margarite; i, magnetic iron ore; j, hornblende rock highly crystalline.

2. a, Mica slate; b, 6 ft. magnetic iron ore; c, talcose slate; d, 6½ ft. magnetic iron ore; e, chlorite slate; f, hornblende rock, crystallized; g, 7 ft. Emery, chloritoid and margarite; h, magnetic iron ore; i, hornblende rock.

The elevation of the upper outcrop of this bed above the immediate base of the mountain is 750 feet. There are curious rounded masses of remarkably pure emery three feet in diameter in this bed entirely invested with a coat of delicate rose-colored margarite, and a thick layer of bright green chloritoid, the investing coat being from half an inch to two inches in thickness. It is found extremely difficult to break up these masses of solid emery, drilling holes in them for blasting being very slow and laborous, and no grip can be had on their rounded sides by the sledge. A heavy drop hammer will be required to break them to pieces —or they may be cracked by fire if heat does not injure the emery.

A branch of Westfield river separates the South from the North mountain, a hill nearly 750 feet high, through the summit of which the great emery bed also cuts. On this hill the emery is largely crystalline and less mixed with magnetic iron ore. It is more like corundum, but still contains the combined protoxyd of iron, characteristic of true emery. Its specific gravity is from 4·02 to 4·37; Naxos emery being from 3·71 to 3·72, according to my trials of it, in comparison.

On the North mountain, three large beds of rich magnetic iron ore, distinct from the ore accompanying the emery, occur, the ore yielding 54½ per cent. of metallic iron. This ore is mined, and is smelted into bar iron by forge fires, and is also sold to mix with the hematites and carbonates of iron worked at the Lenox and Stockbridge furnaces.

Digesting the South mountain emery in fine powder with nitro-muriatic acid and sulphuric acid for a long time, it was found that 73 per cent of it was wholly insoluble in acids; and on microscopic examination the grains were seen to be translucent, and exactly like the Naxos emery prepared in the same way; but these translucent grains are readily taken up by the magnet. I therefore infer that protoxyd of iron is a chemical constituent of true emery.

Chemical analysis of the coarsely crystalline emery of the North Mountain, Chester. Sp. gr. 3·75. H.—9.

Alumina,	46·50
Protoxyd of iron,	44·00
Titanic acid,	5·00
Silica & loss,	4·50
	100·00

Emery of the South hill. Sp. gr. 4·02. H—9.

Alumina,	45·50
Protoxyd of iron,	43·00
Silica & titanic acid,	11·50
	100·00

Regarding the oxyd of iron which can be dissolved out from emery by acids as accidental, and that which cannot be so removed as an essential constituent, we shall have for the composition of these samples of emery analysed, after digestion in acids.

	Chester, 1.	Chester 2.	Naxos best selected emery.
Alumina.	60·4	59·05	62·3
Protoxyd iron	39·6	40·95	37·7
	100·0	100·00	100·0

If this view is adopted, emery must be ranked as a distinct species, and not as a mere granular form of corundum or sapphire

In conclusion, I would state that practical trials of the Chester emery, in several of the large armories and machine shops of this and the adjoining States, have proved it to be fully equal in value to the well known emery of Naxos, which I have no doubt it will wholly supplant in this country, and that it will ere long become an article of export to Europe, either in its native form, or in a manufactured state.

It may be proper to add, that John B. Taft, Esq., of Boston, in behalf of his associates, owners of the emery mine, has the sole management of the business connected with the mine.

I would express my obligations to Dr. J. L. Smith for the valuable information contained in his articles on the emery of Asia Minor and on the associated minerals of the emery localities.

OUR NEW GOLD & SILVER TERRITORIES.

THE GOLDEN DOMINIONS OF AMERICA.

It has been remarked by an observing philosopher that "to command the gold and silver production of the world, and, combine this with an intelligent policy, is to rule the world." Without losing sight of the prolific gold fields of Australia, we are justified in saying that the ability of the American continent to produce the great mass of the precious metals necessary for a currency, commerce, government and convenience of the world, will become manifest so soon as the auriferous vastness and geography of their gold producing territory shall become correctly understood by Americans, and its commercial development made a systematic policy. The bulk of the American people are as yet comparatively ignorant of the prodigious extent of the mineral resources of their country, and especially of its richness in the precious metals. Tracts of auriferous territory, millions of acres in extent, are gradually being opened by the adventurous pioneer and prospector, and still millions upon millions of acres more, sparkling with glittering wealth, await but the magic impulse of capital and enterprise to unlock their hidden treasures.

Northern America opens towards heaven as an expanded bowl to receive and fuse harmoniously whatever enters within its rim. Each of the other continents present a bowl reversed, scattering everything from a central apex into radiant distraction. Political empires and societies have in all ages conformed themselves to these emphatic geographical facts.

While, therefore, as Americans, we may indulge in terms of panegyric upon the illimitable mineral resources and native grandeur and richness of our territory, we may also be pardoned for contemplating the future political greatness of our country, when the republic expands and finds itself to the continent, and when it attains a population, which it is capable of sustaining, equalling that of the rest of the world combined.

The configuration of the Sierra Madre (the mother mountain of the world) is transcendently massive and sublime. Rising from a basement whose roots spread out two thousand miles and more, its crest splits almost centrally the Northern continent, and divides its waters to the two oceans. Novel terms have been introduced to define its characteristics; *mesa* expresses the level plateaux of its summits; *canon*, the gorges rent in its slopes by the descending rivers; *bute*, the conical mountains isolated and trimmed into symmetrical peaks by atmospheric corrosion. The core, or base of the Sierra Madre is red porphyritic granite, from the immense naked masses of which comes the popular soubriquet of "Rocky" Mountains. This is the gold producing quartz. The Sierra Madre is composed of the original mass of the globe, and has neither lava, craters, active volcanoes nor traces of the igneous force within. It is pre-eminently primeval. Scooped out of its main mass are valleys of great size and beauty, which have received from the trappers the name of Parks. These occur at regular intervals, alternately upon either flank, and mark the sources of the great rivers. But these remarkable valleys are beginning to attract the adventurous, the wealth and the wonder-seekers of the world.

The Cordillera of the Sierra Madre enters our territory in latitude 29 degrees, longitude 103 degrees, and passes beyond the 49th degree in longitude 114. Its length, then, within these limits, exceed sixteen hundred miles. It maintains an average distance from the Mississippi river exceeding one thousand miles, and has the same distance from the beach of the Pacific Ocean; it forms, therefore, a continuous summit crest parallel to and midway between them. The mountain crest has, when seen against the horizon, the resemblance of a saw or cock's comb, whence the soubriquet Sierra—the continuous mass upon which it rests, resemble a chain of links, or a cord with knots, hence the name Cordillera. The average elevation of the crest is 12,000 feet above the sea; breadth across 300 miles.

This Cordillera is auriferous throughout. It contains all forms of minerals, metals, stones, salts and earths; in short, every useful shape in which matter is elsewhere found to arrange itself, and in all the geological gradations. The prominent agricultural features of the Cordillera, is pastoral fertility. Stupendous peaks and battlements exist, extreme in bald and sterile nakedness; plains there are blasted with perpetual aridity and congealed by perpetual frosts. But the space thus occupied is small. Indigenous grasses, fruits and vegtables abound; it swarms with animal life and aboriginal cattle; food for grazing and carniverous animals, fowls and fish, is everywhere found; the forests and flora are superlative; the immense dimensions of nature render accessibility universal. An atmosphere of intense brilliancy and tonic tone overflows an embalms all nature; health and longevity are the lot of man. Then we must reflect that the cordillera of the Sierra Madre is but a third part in area of our "mountain formation."

Without dwelling further at this time upon this topic we will proceed to a brief description of an immense area of country as little known to the American people as was America itself by the people of antiquity, and that is

THE PLATEAU OF NORTH AMERICA.

This area contains within itself three great rivers, which rank with the Nile, the Ganges and the Danube in length, and five great ranges of primary mountains. The whole immense area, encased within the cordillera of the Sierra Madre on the east, and the cordillera of the Sierra Nevada de los Andes on the west, and from Tchuantepec by the Polar Sea is the plateau of North America. It is four thousand miles in length, from southeast to northwest; its superficial area is two millions of square miles and its altitude six thousand feet above the sea. The portion within our territories at present is one-third of the whole country.

THE METALIFEROUS REGION OF THE WORLD.

Its longitudinal portion is remarkable, having its extremities within the equatorial and polar zones; but its greatest breadth and area are across the isothermal zone or belt. It is subdivided into seven great basins, which succeed one another in order, from the south toward the north. The basin of the City of Mexico is the first and most known. The second is the Bolson di Mapimi, in Mexico; the third is the immense basin of the Rio del Norte; the fourth, the basin of the Colorado—the great Sierra Mimbres divides these two basins asunder, after the manner of a backbone, from which their waters descend down the reverse slopes. They are longitudinal, parallel, and overlap one another,—Distinguished by stupendous volcanic phenomena they pre-eminently constitute the metalliferous region of the world. The confluent rivers of this basin, where they unite to form the Colorado, gorge the Andes by the wonderful canon of that name and debouch into the Gulf of California. The fifth is the basin of the Salt Lake; the sixth, the basin of the Columbia. The transverse chain of the Snake river mountains parts these two vast basins Here is seen a most wonderful display of natural phenomena. The Snake and Columbia rivers, coming from opposite directions, and unite together, gorge the Andes at the cascades and debouch into the North Pacific Ocean. The seventh is the basin of the Frazer river. From thence the plateau continues its direction through a region as yet but little known, and opens out upon the Polar Sea. Through nearly one-half the entire length of this vast plateau, say for a distance of two thousand miles, a railroad can be built along the water grade of the Rio Bravo Grande del Norte and its confluents, the Conches. This road may depart from the proposed American continental or Pacific road, under the fortieth degree of north latitude, bisecting the plateau longitudinally to the junction of the Cordilleras, at Tabasco beneath the tropics. This is one of those gigantic plans for the development of the American continent which the surpassing richness of the region and the steady and steel-like energies of our people will in time put in successful execution.

The climate of the plateau is peculiar, but very uniform. The genial and propitious climate of the isothermal temperate zone extends up and down the summit of the plains, and is felt at both extremities. The soils of the plateau are of the highest order of fertility. The dry and serene atmosphere converts the grasses into hay, and, preserving them without decay, perpetuates the food of grazing animals the year round.—Meat food, hides, wool, fowls, fish and dairy food, are of spontaneous production. Spots of arid sand are few and insignificant; such as exist are from the auriferous granite, and contain placers of gold. The whole vast area is surcharged with gold. A perpetual, sure and systematic irrigation dispenses with laborious manual tillage. In short, the plateau presents itself prepared and equipped by nature in all departments, at every point, and throughout its whole length, for the immediate entrance and occupation of organized society and the densest population. Accessibility to the plateau is wonderfully facile and unobstructed over a tranquil ocean on the one hand, and by the great plains on the other. The success of the Mormon settlement and other flourishing communities upon the plateau, and the facility with which large armies have been transported through it within a few years, demonstrates the capability of the region to sustain a dense population. Infinite is the assemblage of mountains, plains and great rivers in every variety and magnitude that unite themselves to form the grand area of the plateau of America. The features of its geology are equally various, vast and wonderful; both mountains and plains promiscuously appear, of carboniferous and sulphurous limestones, lava, porphyrite granite, columnar basalt, obsidian, sandstone, accompanied by their appropriate contents of precious and base metals, precious stones, coal, marbles, earth, thermal and medicinal streams and fountains, and all of these adorned by scenery forever varying, fascinating and sublime.

AGGREGATE POPULATION OF COLORADO.

We append a table of the estimated population of Colorado, obtained from personal investigation. It may of course, be imperfect in some respects, but, in the absence of any official data on the subject, we believe it to be as correct as any estimate of the kind extant.

Arapaho county		11,000
Gilpin county		10,000
Clear Creek county		2,500
Jefferson county		1,700
Boulder county		1,600
Laramie county		750
Douglas county		500
El Paso county		2,000
Pueblo county		700
Fremont county		700
Huerfano county		1,200
Summit county. Lake county...	Unfixeed.	
Costella county. Conejos county.	Mostly Mexicans	12,000

Total	68,100
Less Mexicans	12,000
Estimated American population	56,100

This does not include the population on the Indian Reserve, nor the Indians scattered loose or in tribes throughout the Territory.

We are not aware of the existence of any table showing the distance between prominent points in Colorado and its chief external or metropolitan mart, Denver City.

DISTANCES FROM ATCHISON, MO., TO DENVER CITY, AND FROM THE LATTER TO PROMINENT POINTS IN THE MINING REGIONS OF COLORADO.

	MILES.
From Atchison, Mo., to Dever City	620
From Denver City to Central City, Gilpin county, embracing the mining districts of Empire, Idaho, Nevada, Eureka, Black Hawk, Montana and Fall River—northern mines	45
From Denver City to Lorette, Park county—southern mines	85
[Lorette is the central point of travel for Montgomery, Fair Play and Hamilton, on the Atlantic side of the Snowy Sierra; and for Breckinridge, Parkville and Lincoln, on the Pacific side—all mining towns, and each the centre of an extensive mining neighborhood.]	
From Lorette to Oroville, Lake county, and California Gulch—the extreme head waters or source of the Arkansas river—gulch mining altogether	40
From Denver to Colorado City, El Paso county	75
From Colorado City, at the foot of Pike's Peak, to Puebla, Puebla county	45
From Colorado City to Canon City	45
From Colorado City to Fort Garland, Costella county, the road passing through Puebla	100
From Fort Garland to Culebra, Costella county, San Louis Park	17
From Culebra to the town of Costella	19
From Fort Garland west to Guadalupe, Concjos county	50
From Denver City north along the foot of the Snowy Sierra to Boulder City, Boulder county	30
From Denver City to Laporte, Laramie county	70
At Laporte the roads fork, one running to Fort Laramie, on the Platte, distance	180
And the other to Salt Lake City, en route for San Francisco, distance by the United States overland mail route	425

A GENERAL DESCRIPTION OF COLORADO.

Through the entire centre of Colorado, from north to south, and lapping up against the indented base of the mountains, are the deposits of the primeval ocean—all classing in the geographical series of "secondary" rocks. The contact here of the secondary rocks with the primeval mountains brings into juxtaposition an immense variety of metals, rocks, earths and salts.—Above these, in the mountains, we find precious metals and lumber abounding in infinite profusion. Pastoral agriculture there occupies the whole face of nature.—From the crowning summit of the Snowy Cordillera, turreted by the stupendous towers of Long's and Pike's Peaks, descend, towards the two great oceans—the Atlantic and the Pacific—the eastern and western slopes of the American continent. On the east is seen the smooth and gently descending area of the Great Plains, interlaced by rivers. On the west we see the prodigious system of mountains, extending to the Pacific sea, channelled and drained by immense rivers which bear off its surplus waters. Surmounting the central barrier of the continent, like the saddle upon the back of a horse, Colorado Territory is pre-eminently the keystone of our continental arc. As in the East the boundaries of the State of Pennsylvania bestrides and neutralize the barriers of the Alleghanies, fusing the Atlantic sea with the Mississippi basin—the same on the West, in the sublime prospective expansion of our immense interior, onward to the great mountains and beyond to the Pacific sea, is accomplished by the supreme and crowning geographical position of Colorado.

The idea of embracing within the boundaries of States and nations massive chains of mountains, instead of causing them to form limits of separation, is here demonstrated in two instances on the American continent. Is it wise to perpetuate the profound blunders of antiquity, which have made for thousands of years the Pyrenees, the Alps and the Caucases bulwarks to crush affilliation and make eternal social isolation; or shall we confine these barriers where social unity and energy shall obliterate them as barriers against the fusion of mankind into the grand scheme of civilization and Christianity?

The entire catalogue of metals, salts and chemicals is found in Colorado, in juxtaposition, or as conveniently arranged as shops are on Broadway—all that is necessary to occupy the industry of man are found, as it were, in a bunch. An area of eighty thousand miles as thoroughly permeated with gold as the waters of the Atlantic are with salt. It is found in every form, ore in all its varieties, and pure in the placers. The beds and banks of all the streams sparkle with the priceless deposit.

The aggregate production of gold in Colorado since its first discovery there, may be estimated at one hundred millions of dollars. There are, probably, at least ten thousand mines, constituting actual property, now being worked in the territory. Gold mining is the chief interest of the territory. While in the Eastern grain growing States labor is occupied in the production of the cereals, and in manufacturing and commercial pursuits, in Colorado, and in its peerless sisters, Idaho, Montana and Nevada, the production of gold is the primary object of labor; for with them all the necessaries, comforts and many of the luxuries of life can be readily purchased.

There exists in Colorado ample evidence that the supply of gold in quartz placers and in the beds and banks of streams is absolutely inexhaustible. Every season startling discoveries of gold are made in the two flanks of the Cordilleras. Pioneers are magnificently rewarded for their toil and industry. The civil war, instead of diminishing the production of gold, has been the means of bringing it out in Colorado in more abundance than ever, and it will continue to be so as long as paper money shall fail to represent true values, as it does at the present time, and so long as our advancing army of progress aims to secure wealth and self-independence.

The amount of transportation between the Missouri and the Colorado, as the first point of entrance to the great mountain system, is prodigious. The Great Plains represent the ocean between the city of New York and Liverpool. It is no uncommon thing to see as many as five thousand wagon teams in one camp, and it is not setting the figure too high to say that at least half a million of people are more or less interested or engaged in this vast system of intra-continental transportation.—*New York Herald.*

THE SULPHUR MINES OF FORMOSA.

In the Island of Formosa there is much to interest even the most superficial observer, while the field which it offers to the scientific investigator is abundantly wide and varied. Among the objects of interest, the sulphur mines at Tamsui well deserves a place; and as I lately visited them, I will endeavor to give some idea of their appearance and characteristics. I had visited the place once before, but on reaching this harbor from Taiwamfoo, I resolved to go again, chiefly on account of one of our officers, who would, in all probability, not again have the opportunity. On inquiry on shore, I found that the captain of a French bark—the Bouqueran—and his brother, the mate, intended going up the next day, whom accordingly we were invited to join. Starting next morning with the tide, we proceeded seven miles up the river; and on reaching our point of debarkation, hired coolies to carry our hamper of provisions. Arming three of the French sailors, and having looked well to guns, revolvers, cutlasses, etc., we commenced our march inland. Through rice-fields, buffalo tracks, over hills, through water, mud, and rough stony ways, did we trudge for four hours, keeping gradually on the ascendant as we approached the mines. Here I may remark, the air is very heavy and full of an undefinable vapor. As we proceeded, we found the temperature of the brooks and rivulets increase until we could not bear our hands in them. Bathing in this water is good for various complaints. Rheumatism yields to one or two baths as if by magic; skin diseases, so common among the Chinese are removed. We tested its efficacy by experiments upon two young dogs which we took up with us in the boat, they being cured of a skin disease by one good lunging into the water at about 120° temperature. Along the route the wonderful industry of the Chinese was observable in the irrigation of the rice-fields. These are formed in steps, like an amphitheater, on the slooping sides of the hills, and convey an idea of the immense labor attending the cultivation of rice over that necessary for the growing of our hardy food at home. The wooden aqueducts for conveying the supply of water across ravines to its required level are of the most primitive description. Square towers pierced for musketry are frequent along the road, which to within a mile of "the valley" is lined by, and carried through fields of pineapples. But suddenly, on lifting our eyes from the narrow pathway, we found ourselves overlooking a singular scene. Conceive a vast tract of stones, entirely bare of vegetation, and so forming a great contrast to the verdure-clad sides of the surrounding mountains, dotted here and there with jets of white smoke and steam, and stretching further than the eye can reach on every side. To me the idea conveyed was that which had often been pictured to mind in reading Milton, and just what my imagination had painted as the great picture of chaos, when Ovid represents the four elements of fire, air, earth, and water as a huge conglomerate mass. To portray the scene I will not attempt; but fancy the valley to be about eight miles wide, bounded by high mountains, from the green slopes of which, as one gazes upon the scene, the mind is filled with impressions of wonder and awe. We continued our way till we arrived at the principal hole, from which the sulphur issued in the sublimed form, and condensed on the stones beside it. The noise with which it issues from these holes resembles the escape from a waste steam-pipe of steam at about 20 lbs. Quantities of sand are blown up along with the sulphur. Of course, curiosity prompted us to throw some large stones into the holes from which the vapor issued; but they were instantly blown out and away to one side, proving the existence of a considerable pressure underneath. Many other holes are likewise to be seen—some, too, from which no vapor issued, proving that it had found vent elsewhere. In many of the holes water was seen to be in constant ebullition, boiling away at a terrific rate; and the water from these running into the mountain streams, heats the latter for miles, and impregnates them with volcanic matter. The French captain filled three bottles with the water to send to Marseilles for analysis. The sulphur is extracted from the stones, which are heated in cast-iron pans, about two feet in diameter, after which it is left to cool into cakes for use. The mines being the property of the mandarins, who work them for their own benefit, there is, of course, very little done at them. We did not see more than half-a-dozen men at work, and perhaps as many more carrying the sulphur cakes down the mountain sides for storage.—*Correspondent of the Edinburg Scotsman.*

THE DEPTH OF COAL BEDS.

Heath's mine in Virginia is represented to contain a coal bed fifty feet in thickness. A coal bed near Wilkesbarre, Pa., is said to be twenty-five feet thick; at Mauch Chunk is a coal bed fifty feet thick, and in the basin of the Schuylkill are fifty alternate seams of coal, twenty-five of which are more than three feet in thickness. In Nova Scotia is a coal formation fourteen hundred feet deep, and containing seventy-five alternate layers of coal. The White-haven coal mine, in England, has been worked twelve hundred feet deep, and extends a mile under the sea; and the Newcastle coal mine, in the same country, has been worked to the depth of fifteen hundred feet, and bored to a similar depth, without finding the bottom of the coal measure.

GAS.

WOOD GAS.

Albany, N. Y., Jan. 19, 1865.

Mr. Editor:—In pursuance of your published invitation, I send you the following description of the Aubin system of Gas manufacture from wood, as now used by many village Gas-Light companies in this country.

As the information asked for relates generally to wood as a material for Gas making, its mode of treatment for that purpose, and the results obtained, I will confine this article to those subjects, not describing the Aubin Works generally, but only the parts directly used in the manufacturing process, and without a knowledge of which that process cannot be understood.

These parts are the retort and charger. The retort is an iron vessel shaped like a kettle, and like it open at the top. Around the edge of this open top is cast a groove, into which the rim of a separate cover is formed to dip. This groove being filled with lead, which becomes liquid when the retort is hot, it will be seen that the cover not only can be removed and replaced at pleasure, but is a perfect safety valve against explosion under all circumstances.

The charger (a separate vessel used to hold the Gas making materials) is also of iron, and is a close vessel, except it has an opening in its lower part, through which the Gas making materials are introduced into it while out of the retort, and through which *alone*, the vapors formed can pass, while in the retort. It is of such shape that the exterior surface of its lower part is a counterpart of the lower interior surface of the retort. Consequently when in position in the retort, the two vessels are in close contact. This charger is used for three purposes:

1st—To introduce to, and withdraw from, the retort, the materials from which the Gas is to be made.

2d—To graduate the action of the heat upon them, and thus prevent their conversion into vapor faster than the retort can commit that vapor into fixed Gas—it being well understood that vapor is not Gas, and can only become so by actual contact with iron or coke, or charcoal heated to redness. And

3d—To compel *all* such vapor to pass rapidly over and in close contact with the red hot bottom and sides of the retort before it can escape from it. From the position of the charger in the retort it is evident all these effects are accomplished by it. The heat can only reach the materials in layers, all the vapor must pass out of the bottom opening of the charger, (to do which they must raise it a little) and afterwards, to escape from the retort, must pass *rapidly* through the small space between the charger and the red hot bottom of the retort. A further effect of this arrangement is to prevent decomposition of the gas, and hence there is no deposit of carbon on the charger or retort.

I have described the above novel features of the Aubin system with much particularity, as to them is due the great economy of that system, and the enormous yield of Gas obtained from materials, the very richness of which prevent their advantageous use in other Gas-Works.

The mode of operation in the Aubin Works, is as follows: The bench of retorts being heated up the operator proceeds to charge them. He has on one side a pile of short hard wood blocks, previously kiln dried to expel the water, and near it another pile of dry saw-dust, or powdered charcoal mixed with petroleum, or kerosene tar, (the residuum left in the distillation of petroleum for kerosene oil.) Turning the chargers over, he partly fills them through the bottom opening with wood; on that he places some of the oily mixture above referred to—then more wood, and again more of the oily mixture until the chargers are full. He then closes the openings in them with a grate, and turns them over ready to be introduced into the retorts, which is done by simply lifting off their covers, placing the chargers in them (openings down) and replacing the covers. In about an hour, during which time each retort has made from 80 to 100 feet of gas, the spent chargers are removed, and fresh ones prepared as above are substituted in their place, and thus the process goes on.

It must be admitted that nothing can be simpler than the above operation, and if a proper heat is maintained and dry materials are used, the following results can always be relied on. From 2400 pounds of hard-wood and 40 gallons of petroleum, or kerosene tar, 12000 feet of good Gas are obtained, and the charcoal made is of the best quality, and almost everywhere is worth what the wood cost in the first place. The latter fact is especially important in cities where wood is dear, as there the price of charcoal is in proportion, and the demand for it certain. In interior towns where wood is cheap, it is true, charcoal will be less saleable, but as the price can be low, a demand for it even there can soon be created. Under any circumstances then, charcoal is as valuable a residuum from wood Gas as coke is from coal Gas. But in many localities a cord of wood will not cost one-third as much as a ton of Gas coal, while it will yield three times as much Gas. Can there be a doubt therefore as to which of these materials is the cheapest for the manufacture of Gas—especially where Gas coal is dear and wood is cheap? If an Aubin Work could be placed in a city where 50,000 feet of Gas would be used daily, and where therefore skilled labor could be employed and the economy of an extended business secured, such a doubt would soon be resolved, and I do not hesitate to aver that at least 30 per cent. of the expense of manufacturing coal Gas under like circumstances would be saved.

In the above description I have spoken only of hard wood; it must not be inferred from that, that no other kind will answer. In this country I prefer hard wood (on account of the superior value of its charcoal, and because resinous woods are scarce and dear,) although the hydrogen gas obtained from it must be enriched by the addition of olefiant Gas from oil, oily seeds, oil coals like the Albert, or other such materials. Where resinous woods are cheap the results are still better, as while the charcoal is very good, much less heat is required for the distilling process, and a great yield of rich gas is obtained from the wood alone, without the addition of any separate enriching materials. I claim moreover, that to all such materials, including resinous wood, the Aubin system alone is adapted, as when exposed to sudden vaporisation in the retorts used, either in coal works, or in those usually used for making wood Gas, such materials (from being exposed at once throughout their mass to the violent heat of the retort) are too suddenly acted upon, and the vapors occupying the center of the retort, must pass off as vapor, only to be afterwards condensed into tar to clog the pipes.

Very truly yours, H. Q. Hawley.

THE MAGNESIUM LIGHT.

A lamp for the purpose of burning the wire is said to have been invented by Mr. A. Grant, who is endeavoring to bring his design to practical perfection. Mr. Grant seeks to make magnesium cheaper still than the best stearine, and states that by burning a strip of zinc in conjunction with two strips of magnesium he is able to reduce the cost of the light by two thirds. He even ventures to predict that magnesium will become as cheap as zinc, and that in course of time it will be possible to illuminate a street a mile long, at the rate of a halfpenny per hour! It is not a small thing to be able to record that photography is no longer dependent upon the action of the sun. The value of magnesium as an illuminator for the purpose of "signalling," is to obvious to escape immediate recognition. The portable nature of the contrivance, and its perfect immunity from risk of explosion, together with some other evident advantages, render its vivid light all the more practically valuable. Parisians, we are told, are going to make it figure on the stage, and have sent orders for some of Mr. Grant's lamps to illuminate their painted scenery.

In the neighborhood of the Caspian Sea, petroleum is used as fuel by impregnating clay with the combustible fluid. The Norwegians mix tar and sawdust, moulded in the form of bricks, and burn in a similar manner.

PETROLEUM.

Perhaps no development connected with the recent material progress of our country, is of more importance than that concerning the Petroleum discoveries in Pennsylvania, West Virginia, Ohio and Kentucky, and as the matter has now assumed a national interest and become of vast consequence in the commerce of the world, a few words on the subject may not be inappropriate. This wonderful discovery has gone through all the phases which characterized the gold discoveries in California, except, that being in a well organized and governed commonwealth, and subject to laws and established courts, the chaotic and tumultuous scene of riot, outrage, robbery, and crime of every description, which blackened the early history of the California gold fever, has been absent here. But the wild spirit of speculation, the insane excitement, the heedless rush to the scene of action, the immense fortunes realized, the creation of mushroom towns and cities, the derangement of old laws of trade, the world-wide distribution of the precious product, the strange development of oil in regions widely apart, one after another, in rapid succession, the sudden collapse of the excitement from a glut of the markets, the renewed rage of the fever, all betray the same symptoms as the gold mania.

It was predicted that the gold fever would subside and leave nothing but ruin behind. But it has not done so. On the contrary it has extended until it has created flourishing cities and communities in California, Nevada, Oregon, Washington, Colorado, Arizona, Idaho, Montana, British Columbia, and Australia, and every fresh discovery of gold furnishes a new illustration of the marvellous power of these mineral agents as elements of colonization. So it is with Petroleum. It has made Venango county such a scene of prodigious prosperity, that he who talks now of the matter being a humbug, must be rather short-sighted. There are the towns built up wholly by these discoveries. There are the railroads solely built to convey Petroleum to market, and so blocked up with it that they cannot furnish rolling stock enough to accommodate the trade.—There are the barrels, millions of them, all over the region, oozing with petroleum. There are the wells, yielding the oleaginous fluid in endless quantities.—There are banks, newspapers, hotels, insurance companies, etc., all resting on the products of those wells.—Those who desire can see and judge for themselves.

Through all the season of navigation the Allegheny river has been running crowded with vessels of every description, laden with Petroleum. Pittsburg, which used to be Iron City, thinks now of little else than Petroleum. Barrels of it swarm everywhere. Refineries multiply. She has become one of the great distributing depots for the trade. The operators clung to Oil Creek as long as a foot of ground was to be had on either side of it, or near it, and there they sunk wells and erected engines with a zeal that can only be compared with that of the quartz gold miners. From Oil Creek they spread themselves along the Alleghany river, banks, and islands; then along Sugar Creek, and so to every stream in Venango county. On all of these oil wells have been sunk and oil obtained, until the whole county is bored everywhere, and the number of wells constantly multiplying.

These explorations carried the operations into Crawford county, by means of the companies boring along French Creek and Oil Creek; into Erie county, by the French Creek enterprises; into Warren and Clarion counties, by following the course of the Alleghany river; through Clarion, Elk, Forrest and Jefferson counties, by following the Clarion river; and, indeed, we can scarcely now name a county in that region of Pennsylvania where petroleum has not been bored for.—Most of the operations are yet merely beginning, except in Venango and the points immediately adjacent. There petroleum is the sole topic. Nothing else is known, seen, or heard of. It is everywhere, and the whole prosperity of the district is based on it.

Passing south of Pittsburg, we find another petroleum region along Dunkard Creek, in the counties of Fayette and Greene, where many companies flourish.—

Here, too, the boring has spread to all the adjoining region, away off into Western Virginia. For the product of this district the Monongahela river is the channel of transportation. But the great West Virginia oil country is far south of this along the Little Kanawha and Hughes rivers, and all the tributary creeks. There the oil has been gathered as it oozed from the earth for half a century or more. Now it is bored for in a scientific style, and every foot of ground is occupied by wells or speculators. The mania has spread in West Virginia to such an extent that we really think the area covered there is more extended than in Pennsylvania, although the product is as yet nothing at all in comparison.—Then there are oil districts in Ohio, and Kentucky, and Canada, of which, as yet, little is known.

The astonishing feature in this development is the vast area of country in which petroleum has undoubtedly been obtained by boring. It is true that in the leading points oil has for a long period been well known to ooze from the ground and flow off into springs of water, creeks, and swamps. But the great discovery was not owing to this, the oil having been struck at a considerable depth while boring for salt. Over an immense area of country it has been subsequently obtained by boring, and in all of these cases the same geological formations has been found. The query often asked, where was all this oil deposited before the discoveries, that we now find so many thousands of wells able to go on pumping it without exhaustion? is completely answered by reference to the depth at which petroleum is found.—*Philadelphia Coal Oil Circular.*

A NEW HYDRAULIC MOVER.

The mass of water which will shortly be at disposal of Paris in consequence of the great hydraulic works now in progress, a mass which will not fall short of 400,000,000 litres per day, situated at an altitude sufficient to raise it to the tops of the highest edifices in Paris, has suggested to M. Edoux, a civil engineer, the possibility of turning to a profitable account for the raising of weights the immense hydraulic pressure which may be derived from water at such an altitude. The pressure is evidently distributed throughout the capital with the liquid itself, so that every water-pipe may be made to supply this moving power at any particular point required. This premises, M. Edoux's apparatus will be easily understood. It consists of two twin towers built of timber, and rising to a somewhat greater altitude than that to which a given weight is to be raised. Let us suppose a public monument, for instance, in course of construction; the towers will be erected close to the site, and furnish the building materials at a small expense and with great economy of time by the following process: Two prismatic platforms or stages slide alternately up and down in vertical grooves made in the sides of the towers; each platform rests on a reservoir of water, which balances the weight to be raised, the bottom of each of the reservoirs being provided with a self-acting peg valve, while an endless chain and a combination of sheaves serve to keep the platforms suspended at the proper altitudes. Now let us suppose one of the platforms to be on a level with the ground, just above one of the communications opened with a waterpipe, while the other platform is situate at the height which the building has reached. The lower platform receives the building materials, which are then more than balanced by admitting a quantity of water into the upper reservoir. No sooner is this effected than the lower platform will begin to rise, while the upper one with its heavy reservoir will descend in the same proportion. The materials thus arrive at the point where the buildings is going on, and while the materials are being discharged above, a new lot is put upon the empty platform. The loss of power by friction and other causes in this contrivance does not exceed five per cent.

Steam Omnibuses.—An omnibus drawn by a locomotive, instead of horses, is now running at Chantenay, in the South of France. It can be turned and stopped with ease; and both inside and outside passengers travel by it without fear.

IDAHO.

Governor Lyon, in his message to the Territorial Legislature of Idaho, thus refers to the mining interests of the Territory:

"I congratulate you upon the new and important discoveries of the precious metals, from the mountains of Pend d'Oreille, the gulches of South Boise to the shores of the Bruno, rewarding well the arduous zeal of the pioneer and the prospector. I would respectfully submit to you for your consideration the mining interest of this Territory. By judicious legislation you will invite outside capital, without stint, to aid in their development; this interest should be most kindly fostered as the bed rock of Idaho's prosperity. Some system of general legislation, by which security of the claimants of claims and uniform laws throughout the differing mining camps could be had, would accomplish an end earnestly desired. In this connection I would call your attention to the gold and silver quartz lead law, and for the better protection of that hardy class of our population to whom danger is not a sentiment and fear is unknown; who, amid trackless wastes, snow-clad mountains and deep down cannons, pursue their enterprises with no capital but their rough hands, and no defender but their revolver; who, without the knowledge of books, have given the world its choicest geological, geographical and agricultural information, in tracing ledges, traversing rivers and exploring valleys, which, but for them, would still have remained an unknown land beyond the Rocky Mountains. That under no circumstances should they lose all the benefits resulting from their original discoveries, legislation should take the place of litigation, and proper amendments be made which would secure for them all their hard earned rights and privileges. The vast unmeasurable structural wealth embodied within our confines, so nicely balanced, of mineral, farming and grazing interest, with mountain forests of timber land, and water power of every description, eminently adapt us for a self-supporting community. The fertile bottom lands of the St. Joseph, Coeur D'Alene, Spokane, La-toh, Palouse, Lapwaii, Koos koos-kia, Nas-so, Payette, Weiser, Boise, Malade, and their tributaries, would alone sustain properly cultivated, a population larger than most of the Atlantic States; while the ranges of nutritious "bunch grass," suitable for herds, cover millions of acres. Add to this placer diggings, of greater or less richness, extending for hundreds of square miles, with well defined gold and silver bearing quartz ledges, unrivalled by those of Mexico or Peru; a glorious climate, with Syrian summers and Italian winters, bespeak the permanence of our untold resources, and the prosperity that surely and positively awaits their development."

The value of the gold received at the United States Mint from Idaho, for the year ending June 30, 1864, was $2,306,568 10, which of course was only a part of the gold mined in that year, in the Territory.

A ladder has been invented and patented by Henry Druce, of Oxford, England. It is constructed on the telescopic principle, and consists of a series of pieces or lengths, each of which forms a single and distinct ladder of itself. These ladders are made to slide one into another, so that the ladder can be extended to any length, according to the convenience of the person using it, and the number of pieces of which it is composed. When closed up it is about 6 feet long.

Oildom has been unusually excited for the past week, says the Oil Register of the 12th ult., by the announcement of the fact, that a 250 barrel well had been struck by the United States Company of New York, upon the farm of Thos. Holmden, Esq., on Pit Hole Creek, four miles from Plumer, and six miles from the Allegheny river. The well is now producing at the rate of 250 barrels per day, and the sucker rods are still in the tubing. It is reasonable to suppose that the amount of flow will be materially increased by the removal of these.

OIL v. GAS.

The cheap gas movement in England is thus illustrated by Punch:

Englishmen and Englishwomen,—Can it be that you like to pay four shillings and sixpence for a bad article when you can have a good one for two shillings and ninepence? Do you need to be reminded—(ladies, I am sure that you do not, for it is you who are the thoughtful and thrifty guardians of our homes)—that one and ninepence saved is one and ninepence got? Then, out with the gas until the companies cease to cheat you. Remember how the grocers tried to do us, and we gave up sugar, until the grocers fell on their knees, and sugar fell also.—Remember how the buttermen cheated us, and we gave up butter, and down came the buttermen and their demands. Let it be unto gas as it was unto sugar and butter, and again we shall triumph. Are there not the beautiful oil, the sparkling camphine, the sanatory photogenic generator, the rosy paraffine, the elegant wax, the charming composite, the useful long six? For the time, let any and all help us to defeat the extortionate vendors of bad gas, which poisons the air, spoils the books and pictures, makes our little ones pale, and kills our eyes. Ere long we shall have magnesium, the loveliest light in the world, but as yet this is too dear. But meanwhile we will have gas cheap and good, or none at all.—Let us have an anti-gas league, the saving will give you most delightful tours next summer. Men—you ought to need no stimulant but a burning sense of wrong, which should kindle every evening when the taper touches the burner. Punch leads the way to light you to light pay; Punch leads you on with waxen brand far flashing in his dread right hand; Punch will relieve you from the yoke, he said, then seized a torch and broke the gas-man's head. To show how terribly in earnest he is, he yesterday blew up a gas collector. Up, my Britons, on my chariot—on, my charged ones, trample them under us! Go it, Icenian, Catieuchlanian, Coritanian, Trinobant!—Yours to the last, Punch.

The Berlin journals relate the following incident which has just taken place in Prussia: "A pointsman was at the junction of two lines of railway, his lever in hand, for a train was signaled. The engine was within a few seconds of reaching the embankment when the man, on turning his head, perceived his little boy playing on the rails of the line the train was to pass over. With a heroic devotedness to his duty, the unfortunate man adopted a sublime resolution. 'Lie down!' he shouted out to the child, but as to himself he remained at his post. The train passed along on its way, and the lives of one hundred passengers were perhaps saved. But the poor child! The father rushed forward expecting to take up only a corpse, but what was his joy on finding that the boy had at once obeyed his order. He had lain down, and the whole train had passed over him without injury. The next day the King sent for the man, and attached to his breast the medal for civil courage."

Artificial Fuel.—An invention has been patented in England, which consists in combining petroleum oil waste, or raw petroleum oil, cow-dung, coal dust, and water, to form artificial fuel, the proportions of the ingredients being varied according as the fuel is intended for domestic, industrial, or locomotive and marine purposes.

New discoveries of gold and silver-bearing quartz have been made on the western slope of the Cascade range, some forty or fifty miles from Olympia, and the Washington Democrat states that the wildest excitement exists among the people of Puget Sound in consequence.

THE MINING & PETROLEUM STANDARD AND AMERICAN GAS-LIGHT JOURNAL, is published at Tribune Buildings, No. 1 Spruce st. on the 2d and 16th of every month, and is a recognized official organ of—

LIGHT, HEAT, MINING INTERESTS.

PETROLEUM, WATER-SUPPLY, AND SCIENTIFIC SUBJECTS GENERALLY.

JAMES W. BRYANT, EDITOR AND PROPRIETOR.

W. S. SHERMAN, PUBLISHER.

PROF. C. ELTON BUCK, CONSULTING CHEMIST.

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The Mining and Petroleum Standard

AND

AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, ... EDITOR.

THURSAY, FEB. 2, 1865.

BACK NUMBERS WANTED.—We want to complete our files of the Journal, the following numbers, for which we are willing to pay full price.

Vol. II—No.'s 13, 22, 24, 25, 29 and 34.
Vol. III—No.'s 40, 42, 44, 47, 48, 52 and 56.
Vol. IV—No.'s 63, 64, 67, 68, 69, 70, 72, 74, 80, 82, 83.
Vol. V.—No.'s 91, 93, 95 and 96.

Those of our subscribers who do not bind the Journal, would do us an especial favor by forwarding to us any of the above numbers. We are being constantly called upon to furnish back issues of our paper by those who value it for future reference, and we have supplied them until all of the above numbers are exhausted.

TO OUR SUBSCRIBERS.—There are a few of our subscribers who are in arrears for the current year, and to whom we have sent bills without any response, We request all who are indebted to us to remit the amount due, either in a Bank check to our order (payable anywhere), or in a post office order payable here, not having received several remittances made to us in money. And if any parties remit and do not receive acknowledgement of its receipt in due time we wish them to advise us.

WOOD GAS.—We invite especial attention to this very interesting treatise under our Gas head. It has been prepared by a gentleman who thoroughly understands the subject, and who has devoted much time and attention to its thorough development. There are sections where the introduction of Wood Gas would be of incalculable value, as from the nature of location it is impossible to obtain Gas from either coal or oil without an outlay of such magnitude as to entirely preclude the possibility of inducing the public to undertake its introduction. Therefore, we think, Mr. Hawley's plan is worthy of consideration, and commend it to all who are interested in Gas improvements.

This subject has been under our consideration for some time past, and we shall give further information in subsequent numbers.

OIL STRUCK NEAR FISHKILL.

MR. EDITOR—I have read with surprise the report of Messrs. Al Derberg & Raymond, Mining Engineers, upon the oil region of Fishkill, as published in your last issue, and cannot allow it to pass without notice.

These gentlemen, after giving a very concise and interesting account of their researches and the tests employed to discover petroleum, dwelling with much stress upon the wells and streams of this, let us hope, new El Dorado, becoming suddenly tainted, I think, give among those very tests good arguments that petroleum does not there exist at all. They then proceed with their Geological report, and commence with three propositions:

FIRST—The petroleum springs of this Country have their origin everywhere in bituminous shales, or limestone.

This I deny, and ask for the scientific proof, for if true, with the immense amount of limestone which has heretofore been quarried, and as lime has been such an important article of commerce to the several counties lying upon the Hudson river for so many years, is it not even more than probable that did this strata contain petroleum, it would long ere this, I may even say before the discovery of oil in Pennsylvania, have been struck; and once having been found, is it probable that it would have been suffered so long to remain unproductive? for, as they truly say, this oil has a smell and taste peculiar to itself, and having once been found could not have been mistaken, particularly since the introduction of the Kerosene lamp, now so common in our rural districts, even by the most ignorant and uninformed, and the very locality of the lands said to contain this oil as described by them is such as to be accessible to, and very familiar to, a large portion of the inhabitants of that section.

SECOND—Petroleum follows the law of all liquids, and collects in basins or fissures.

This is very true, but Messrs. Al Derberg & Raymond fail to state in what strata these basins and fissures exist, and while admitting the absence of the Pennsylvania sandstone, do not even claim that any upheaval of nature has there taken place which would expose this bituminous strata, or indicate the presence of oil.

THIRD—The best conditions for the discovery of petroleum, are: 1st—A basin formed by a bituminous stratum, with some impervious rock below. 2d—A layer of rock above sufficiently porous to form a receptacle.

Of this second condition they admit the total absence, and can only rely to sustain the first upon the gneiss mountains and the Trenton limestone. This is a question for Geologists to settle, and as Geologists who have made a survey of the region under discussion, I think that these gentlemen should give us a full; clear and distinct result of that survey.

They say that they looked for signs of coal, but, as they expected, found none, and admit that they do not believe that coal hunting on the Hudson river will ever result in anything but failure. Will they answer the question candidly? Will petroleum hunting ever result otherwise?

I would ask them in all sincerity, if they are satisfied that the oleaginous matter they saw upon the surface of the water was petroleum? May it not be a partially decomposed vegetable matter, as seen upon stagnant water and the water of marshes generally? May there not be in this limestone formation, traces of iron, or it may be, ore, to a certain extent? And may not this gneiss basin, receiving as it does the wash of the adjacent mountains, be the reservoir of a vast amount of decaying and decayed vegetable matter, and also of the oxides of the metals contained in these rocks, which would give the waters of the marsh and ditches a scum that would not only possess the greasy feeling, the disagreeable smell and taste, but would also present the prismatic colors. In fact, may they not have found—not petroleum—but asphaltum?

In conclusion they say "it is not the part of the Geologist to prophecy certain profit; he can only warn against certain failure, or collect all important facts which may throw light on the subject." This is not only true, but just, and having made their examinations, it is the very thing which as professional men it behoves them to do, and is what the public expect from them. Let us then, setting aside the question whether or not they did find oil, have the plain geological facts of what they did discover—and if any new fact or theory may have been developed, let us discuss and study it, in order that all the light which science can afford, may be thrown upon this truly important matter. C. E.

THE DISCOVERY OF EMERY IN THE U. S.

The Louisville Journal in referring to this important discovery, has the following:

"This discovery is especially interesting to us, as one of our citizens, now President of the Gas Company, Dr. J. Lawrence Smith, may be regarded as being mainly instrumental in its discovery, although he had never been near the locality. It is not generally known that Dr. Smith was for several years geologist and mining engineer to the Sultan of Turkey, during which time he made important discoveries of coal-beds, iron ore, sulphur deposits, chrome ore, emery, &c., and developed several of them. By his discovery of chrome and emery, he broke down two monopolies that controlled the manufacturing world in relation to these two commodities; in the case of emery, reducing the then existing price of $140 to $50 or $70 per ton, according to quality.—He discovered no less than six new localities in Asia Minor and the Grecian Archipelago by putting into practice the geological developments he made in connection with this important mineral. Up to the time of Dr. Smith's discoveries, the world was ignorant of the geology of emery. The result of his scientific and practical studies were embodied in two memoirs presented to the Academy of Sciences at Paris, in 1850."

THE COAL PRODUCT OF PENNSYLVANIA IN 1864.—Adding to the returns received, an estimate for all that large portion of the State west of the Alleghany mountains, it is obvious that the quantity of coal mined in Pennsylvania in 1864, exceeded fifteen million tons, of which total quantity twelve million tons were mined east, and three million tons were mined west of the crest line of the Allegheny mountain.

FULTON'S STEAMBOAT.—In a speech in New Orleans, recently, Jacob Barker mentioned incidentally, that when Robert Fulton's machinery for the first steamboat came from the manufactory in England to New York, it was consigned to him, and that it actually remained in his commission warehouse six months before the money could be raised to pay the charge of importation.

The New York Gas-Light Company have increased their rate of charges to 35 cents per 100 cubic feet, from the 1st instant.

Hall's Journal of Health should be found at every fireside of the civilized world, where the English language is spoken. Its timely warnings against disease, its wholesome advice, and many valuable recipes render it a profitable investment to all. The office is No. 12 Union Square, near Washington Monument.

USES OF PETROLEUM.—A contemporary a few days since informed its readers that petroleum "may become one of the most important auxiliaries in the art of dyeing, in which it is calculated to produce quite a revolution, it having just been discovered that it contains the principles of aniline, the well-known vegetable base derived from indigo, and which is now so commonly used for producing splendid rose-colored stuffs. Experiments are in progress for extracting aniline from petroleum at a cheap cost, and there is every reason to suppose that these efforts will be crowned with success. Certain odoriferous ethers may also be extracted from petroleum; and there is even a talk of substituting petroleum for coal or coke for steam purposes."

A FIRE EXTINGUISHER.—An Apothecary at Nantes has just discovered by accident that liquid ammonia will put out fires. The result, remarks Galignani, is easy to explain on scientific principles; for ammonia, which consist of 82 parts of nitrogen and 18 of hydrogen, is easily decomposed by heat; and the nitrogen thus set free in the midst of a conflagration must infallibly put out the flames.

EXPORTS OF PETROLEUM.—The total export from United States in 1864, was 31,745,687 gallons. In 1863 it was 28,250,721 gallons, of which the following localities were the chief consignees:—England, 6,270,000 gallons; France, 4,625,000; Antwerp, 4,149,000.

Philadelphia consumed 9,498,775,141 gallons of water in 1863.

IMPORTANT NOTICE.

To ADVERTISERS.—Our paper offers a superior medium as an advertising agent, to all those who manufacture or sell machinery or appliances of any kind for Gas, Mining, Water, Sewerage, the production or purification of Oils, &c. &c., not so much on account of a wide-spread circulation, as from the fact that it goes directly to the hands of those who are constantly using and requiring machines and improvements for these branches, and who look hrough our columns for information where to procure them. The class of people who read our paper not only peruse our pages of reading matter, but read the advertisements as well, for the reason that they are directly interested in all things pertaining to their business. We therefore ask, with confidence that we can do them justice, all parties having machinery or improvements of any kind for either of the objects to which our paper is devoted, to send in their advertisements and avail themselves of these advantages. It will be observed that our terms for advertisers are very reasonable.

OPENING A PUBLIC PETROLEUM STOCK EXCHANGE.

A public Petroleum Stock Exchange was formally opened yesterday in the basement of the building No. 73 Broadway, corner of Rector street. About two hundred persons were present. The meeting was called to order by R. H. Gallaher, who said Governor Curtin of Pennsylvania and Ex-Governor Bigler were to be present, bnt were unavoidably called away. Governor Curtin sent a letter of apology.

The officers are William Marchant, President; A. M. Meylert, Vice President; Second Vice President, John F. Pickrell; W. L. Jackson, Secretary. Mr. Gallaher introduced E. W. Davis, Speaker of the House of Assembly of that state, who gave some account of the development of petroleam interests, remarking that if cotton had been king it would be found before another year that petroleum would be king.

He was followed by M. C. Riggs, who spoke of petroleum as an element of material wealth; and then General Walbridge. was called. He made the last speech. It was announced that a call of petroleum stocks would soon be made at the Evening Exchange. The business of the new Petroleum Board will begin to-day.

NEW YORK MINING EXCHANGE.

NEW YORK, Feb. 1, 1865.

	Bid.	Asked		Bid.	Asked
Copper Stocks.			***Gold Stocks.***		
Astec	7⅛	9	Benton	1	1⅛
Bedford	1	1⅛	Consol'd Gregory	25	28⅜
Boston	4½	5¼	Corydon	—	3
Caledonia, A. P.	10	12	Gunnel	3¾	4¼
Canada	3¼	4	Great Western	—	8
Carp Lake	3	5	Hope	—	9
Central	65	70	Isaac's Harbor	¾	⅞
Columbian	—	24	Manhattan	—	9
Copper Falls	34⅛	38	Mariposa	44	44¾
Clifton	—	$1	Montana	½	1
Dacotah	—	5⅛	New York	2⅛	3
Derby	⅛	1⅛	N. Y. & Nova Scotia	½	1¼
Douglass	—	—	Quartz Hill	9⅛	10
Evergreen	18¾	20	Quicksilver M'g Co	81	82
Flint Steel River	12	13⅛	Rocky Mountain	—	10⅛
Frue	2¾	5	Smith & Parmelee	7	12
Grand Portage	—	—			
Hancock	12¾	14	***Coal Stocks.***		
Hamilton	—	6	American	98	100
Hilton	5	6	Ashburton	—	25
Hudson	1	2	Central	62	65
Huron	32	33	Cumberland	61	62
Indiana	8⅜	9¼	Del. & Hud. Canal	206	208
Isle Royale	20	20⅜	*Hampshire & Balt.	104	110
Keweenaw	—	6	Pennsylvania	213	215
Knowlton	7	10			
Lafayette	1	2	***Lead Stocks.***		
Manhattan	—	—	Bucks County	⅜	⅞
Mendota	—	—	Clute	1⅛	1⅜
Merrimac	4¾	5⅛	Erie	—	20
Minnesota	33	37	Macomb	3⅜	5
New York, A. P.	2	3⅛	Plancentia Bay	1⅜	1⅝
N. J. Consolidated	4	4⅜	Sussex	⅜	⅞
Norwich	—	6	Wallkill	3½	6
Ogima	5	6¾			
Ontonagon	3	4	***Iron Stocks.***		
Penn	—	11⅛	Copake	8	10
Providence	1⅜	2	French Creek	⅞	1
Quincy	96⅜	98	Teal Lake	4⅛	6
Reliance	1¼	2⅛			
Rockland	12⅛	14	***Miscellaneous.***		
Superior	8⅜	9	Rutland Marble	17	20
Sharon Consolidated	—	3	* *Ex. div.*		

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10·00 A. M., Express Mail, for Buffalo, connecting with Lake Shore Railway.

4·00 P. M., Way Train, for Port Jervis and Newburgh.

5·00 P. M., Night Express, for Canandaigua, Rochester, Buffalo, Salamanca and West.

6·00 P. M., Lightning Express, Daily, for Canandaigua, Rochester, Buffalo, Salamanca, Dunkirk and West. Connects at Buffalo with Lake Shore and Grand Trunk Railways, and at Salamanca with Atlantic and Great Western Railway.

8·00 P. M., Emigrant Train, Daily, for Buffalo, Salamanca, Dunkirk and West.

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The wells on the adjoining property, known as the "Celebrated Heldricks" wells, and "Pithole Creek" wells, are famous for their immense supply of oil.

The wells on this property are being sunk with great vigor, and promise large supplies of oil.

To the capitalist and to the parties of limited means unsurpassed inducements are offered. Persons investing in this Company get $5 stock and the above Bonus for each $1 invested, without further call or assessment.

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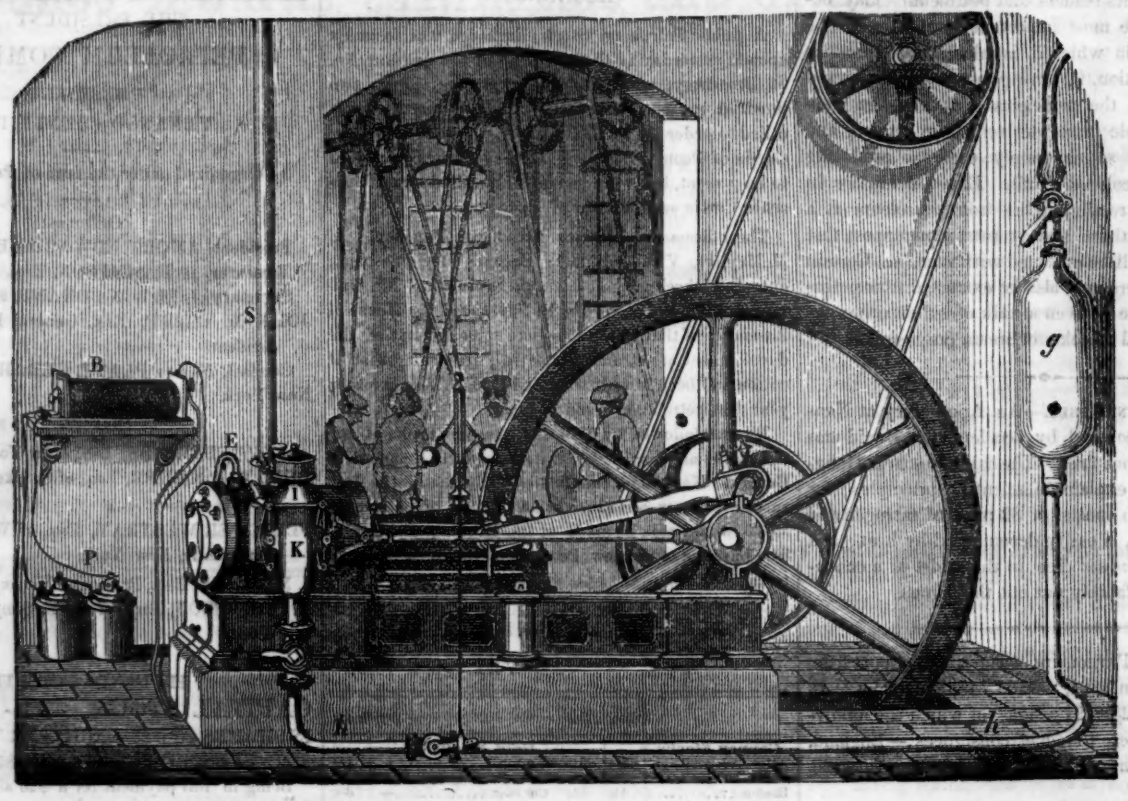

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LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end of the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distance from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

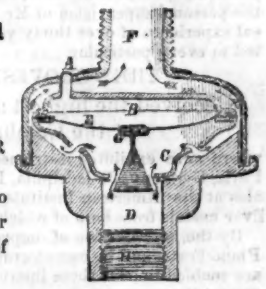
It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK.

NOTICE TO GAS COMPANIES AND GAS CONSUMERS.

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined w ich asever been invented, or known to sci:nce.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the materinl used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SANDS, Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "
GEO. H. KITCHEN, Inspector of Gas Meters, N. Y.
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the manufactory, 52 Greene street, where they can see the operation by pressure guage and test meters.

M. L. CALLENDAR, Agent
Office, 52 GREENE STREET.

THE AMERICAN METER CO.,

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER.

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, acur acy and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 WEST TWENTY-SECOND STREET, NEW YORK,
ARCH AND TWENTY-SECOND STREETS, PHILADELPHIA,
1 BARRETT STREET, BOSTON, will meet with prompt attention.

HARRIS & BROTHER,
PRACTICAL GAS METER MANUFACTURERS

Continue, as heretofore, at their old Establishment,

No. 1117 CHERRY ST., PHILADELPHIA,

TO MANUFACTURE

WET AND DRY GAS METERS and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works.
OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicited, and promptly attended to, by—

HARRIS & BRO.
No. 1117 Cherry st., Phila.

GEO. H. KITCHEN & CO.,
NEW PATENT
GAS APPARATUS
For Country Residences, Public Buildings. &c.,
FROM $300 UPWARDS.
EVERY DESCRIPTION OF GAS FIXTURES.
Gas Fitting in all its branches.
561 Broadway,
NEW YORK.

WORTHINGTON'S STEAM PUMPS, extensively used by Gas-Light Companies. For Sale at greatly Reduced Prices.

Also, a new and highly successful Pump, driven by water pressure, requiring no attention or repairs, and the most economical water motor yet constructed.

Patent GATES, for Water and Steam-stops.
HENRY R. WORTHINGTON,
61 Beekman street, N. Y.

GLYCERIN
FOR
Filling Wet Gas-Meters,

Cheaper than Whisky or any othe substance.

We have furnished the Cincinnati Gas and Coke Company 800 barrels Glycerin, for filling their wet meters, and are now ready to supply other Gas Companies at the lowest cash prices.

We warrant our Glycerin not to corrode the meter metal, nor to freeze at the lowest ordinary temperature, nor to evaporate.

HARTMAN & LAIST,
Manufacturing Chemists,
Cincinnati, O.
Office 64 Sycamore.
Agent in New York, Paul Balluff, 95 Maiden Lane

WOODEN PURIFYING TRAYS.

PATENT
Conically Slotted Solid Wood Sieves
FOR GAS PURIFIERS.

CAUTION
TO
GAS MANUFACTURERS.

The Conically Slotted Solid Wood Tray was patented 21st October, 1862, by N. O. Hawxhurst, assignee of Wm. Combe and all persons are cautioned against purchasing such trays of R G. Hunt, or any other person except the subscriber, as it is a direct infringment of said patent The following companies are now using these trays.

Manhattan, New York,
William sburgh,
Brooklyn,
Albany,
Baltimore,
Philadelphia,
Chicago.
Louisville,
And numerous others

Orders ecsived by mail or otherwise.
JOHN L CHEESMAN.
147 Avenue C New York City

GROVESTEEN & CO.,

PIANO-FORTE MANUFACTURERS.

499 BROADWAY, NEW YORK.

The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of one are unrivalled by any hitherto offered in this marked. They contain all the modern improvements, French, grand action, harp pedal, iron frame, over-strung bass, etc., and each instrument being made under the personal supervision of Mr. J. H. Grovesteen, who has had a practical experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"

Received the highest award of merit over all others at the Celebrated World's Fair!

where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

By the introduction of improvements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES.

No. 1, Seven Octave, round corners, Rosewood Plain Case, $275.
No. 2, Seven Octave, round corners, Rosewood Heavy Moulding, $300
No. 3, Seven Octave, round corners, Rosewood Louis XIV, style $325, a fac-simile of the accompaning cut.

TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.

WEST'S IMPROVED PUMP.

Anti-Freezing, Double-Acting, Forcing, and Lifting.

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, an guarantee that all will recommend them. They are more simple in construction, and work easied and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best in the market. It is very simple, works to a charm, so that any child may use it; throws a steady, continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We say this knowingly, and give the testimony of our own accord, without the knowledge or request of the proprietor"—*New York Evening Post, July 1st*, 1863.

"J. D. WEST & Co.: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 180 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club.

Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a once a suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it....to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year....I know this, and think I may be doing the farmers good by speaking of it....A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream....It can be made to work in deep wells as well as ni shallow ones."

"GREAT NECK, L. I., 1860.

"I have used this Pump for one summer and winter exposed to the northwest wind coming over Long Island Sound, being the coldest possible exposure, and at no time did it freeze, nor were we unable at any time to pump water with great ease.

H. B. MC ILVAIN."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESSEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.

"J. D. WEST & Co.—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sundays), and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 179 Broadway, New York.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway.

LILLIE'S

CELEBRATED

Chilled and Wrought Iron Safes,

WROUGHT IRON FIRE-PROOFS,

LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually protected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in two or three years.

To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

	Outside.			Inside.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	31	26	24	21	14	125
4	31	27	25	22	18	13	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST.

LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

	OUTSIDE.			INSIDE.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54½	39	18	$950
1½	59	50	26	48	39	15	800
2	58	44	27	42½	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	27	40	32	16	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	450
5	42	38	27	31½	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27⅜	23½	15	$250
7	34	31	26	24	21	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19¼	18½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES.

SIDE BOARD	$600
DINING ROOM	350
PANTRY (No. 1)	275
PANTRY (No. 2)	150
DUODECAGON BANK LOCK	100
MONITOR SAFE do.	50
SAFE do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

	OUTSIDE.			INSIDE.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1	68	53	35	55	39	18	$1,200
2	61	53	35	48	39	18	1,050
3	57	47	35	42½	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	56	27	64	42	20	$1,000
0½	61	53	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	53	32	26	49	28	19	400
3	42	36	22	38	32	18	300
4	36	31	20	32	27	16	250
5	30	24	18	26	20	14	200

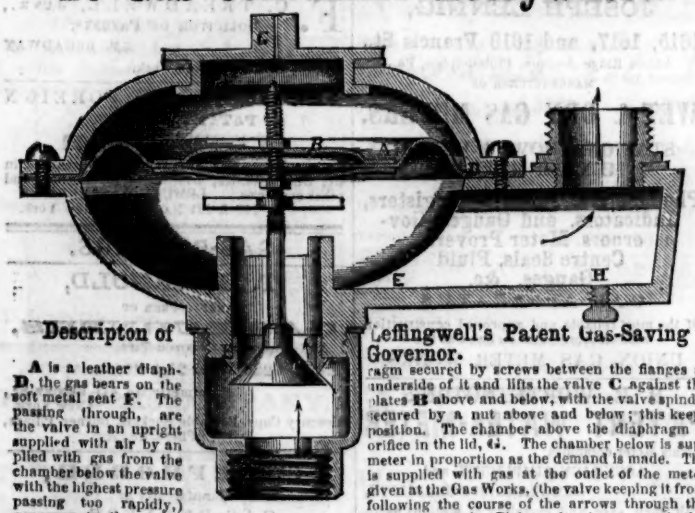
BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.

Business Depart., E. ALVORD. *Corresponding Depart.*, FOWLER AND WELLS

To Gas Consumers Everywhere.



Descripton of Leffingwell's Patent Gas-Saving Governor.

A is a leather diaph- ragm secured by screws between the flanges at **D**, the gas bears on the underside of it and lifts the valve **C** against the soft metal seat **F**. The plates **B** above and below, with the valve spindle passing through, are secured by a nut above and below; this keeps the valve in an upright position. The chamber above the diaphragm is supplied with air by an orifice in the lid, **G**. The chamber below is supplied with gas at the outlet of the meter governor to the outlet meter in proportion as the demand is made. The given at the Gas Works, (the valve keeping it from rip, **H** shows where the distribution pipe is connected. **E** is a chamber to catch the following the course of the arrows through the ttached which c said chamber, at which point, if the drip troubles its action, a syphon it off.

STURGES & FROST, (MANUFACTURERS AND PROPRIETORS FOR THE UNITED STATES OF LEFFINGWELL'S PATENT GAS-SAVING GOVERNOR,) solicit attention to the above instrumen which the cut represents. It will positively lessen your gas consumption **15 to 40 per cent** without diminishing, but greatly improving, the light, which is done entirely on scientific principles easily comprehended.

The above facts are demonstrated by thousands of consumers who have them in practical operation in different parts of the Union. By sending two three cent postage stamps to the proprietors, No. 9 Mechanic Street, Newark, N. J., the GAS CONSUMERS MANUAL will be sent, containing price of the above Governor, full information with regard to the waste of gas, its causes and how remedied, an almanac for the years of 1864-5-6 and 7; also, a diary suitable for any year, together with certificates and references of many who have the Governors in use.

Try it by all means, it will not fail you.

Each Governor is Warranted Perfect.

STURGES & FROST.

☞ As no QUICKSILVER is used, Gas Companies will find it to their interest to favor its adoption among their consumers.

PRINCE'S METALLIC PAINT,

AN INDESTRUCTIBLE COATING FOR

IRON, TIN, and WOOD.

It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. prevents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids or ammonia.

It hardens under water, as has been fully demonstrated by its application to gas-holders, by many of the largest gas companies in the United States; which companies having thoroughly tested its properties as herein claimed, pronounce in its favor over any other paints in the market, even though sold at double its price.

As a coating for patterns of iron or wood, when mixed with shellac, it is much superior to beeswax, oil, or shellac alone, as has been proven at the large founderies in the country.

For patching boilers and making joints, it is considered superior to red lead, or any other preparation.

For cleaning metals it takes the place of crocus, rouge, and emery, being better and cheaper.

This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

Terms, by the Barrel or Half Barrel, Five Cents per Pound.

A liberal discount made to parties purchasing by the ton.

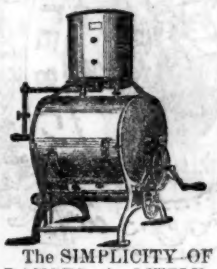
A Barrel or Ton will be forwarded to any gas companies desirous of testing its qualities, for which there will be no charge if it does not give entire satisfaction as being the cheapest and most durable of all other Paints in the market.

Also, Prince's Imperial Black Paint, and Prince's Protoxide of Iron.

DANIEL SLOAN, General Agent,
115 LIBERTY STREET, NEW YORK.

Local Agent—CALVIN GAY, 29 Doane st., Boston.

DRAKE'S
PATENT
AUTOMATIC GAS MACHINE.



THIS MACHINE, which has been in constant use for more than two years, is now acknowledged to be the

Most Convenient,
Simple, and
Efficient Method

OF LIGHTING BUILDINGS OF ALL KINDS, out of the reach of regular gas-works, ever brought to public notice.

The SIMPLICITY OF THE APPARATUS, its ENTIRE FREEDOM FROM DANGER, the LITTLE ATTENTION REQUIRED, the EASE WITH WHICH IT IS MANAGED, and THE CHEAPNESS and SUPERIORITY OF THE LIGHT, has gained for it the favorable opinion of those acquainted with its merits.

The Machine takes up but little room; no disagreeable odor is experienced in its use; no fire is applied to the apparatus at all; it can be attached to ordinary gas-pipes used for coal-gas, and is burned through the same kind of fixtures.

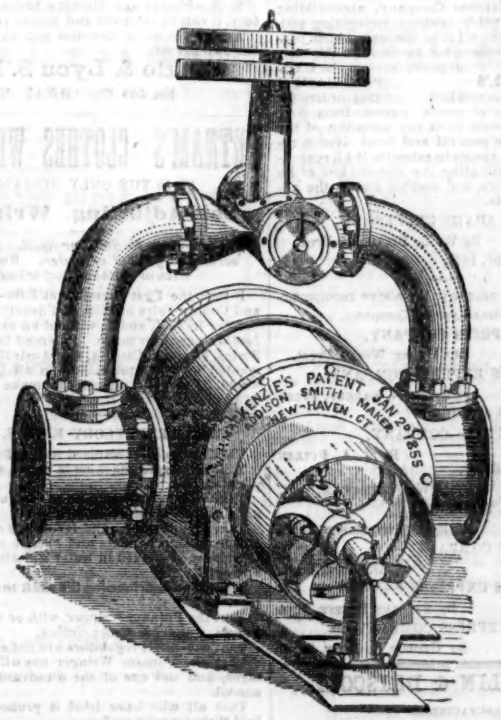
These Machines are manufactured in Boston, by the AUTOMATIC GAS-MACHINE CO., and are for sale at their Store, 78 Washington street, Boston, and also at the Agency, MITCHELL, VANCE & CO.'s, No. 620 Broadway, New York.

For further particulars, address—

MITCHELL, VANCE & CO.,
620 BROADWAY, NEW YORK CITY.

THE MACKENZIE PATENT GAS EXHAUSTER AND COMPENSATOR.

SMITH & SAYRE,
Sole Proprietors and Manufacturers of



They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the production and illuminating power of the gas, and add very much to the durability of the retorts, clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, durcleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

We are also sole proprietors and manufacturers of the

MACKENZIE PATENT BLOWER, PATENT CUPOLA AND SMELTING FURNACE.

The Blower is a Force Blast machine, durably built, and can be driven with one-third the powe required to drive the ordinary Fan. The Cupolas are manufactured in sizes to melt from 1 ton to 20 tons per hour, will save one quarter of the time required by the old style Cupola, and 33 per cent. uel. Address SMITH & SAYRE, 458 Broadway, New York.

THE
STANDARD
Gold Company
OF COLORADO.

DIRECTORS,
ROBERT BOWNE,
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S. A. BANKS,
SYLVESTER TAYLOR.

President, ROBERT BOWNE.
Secretary, F. A. MITCHEL.

MINES on FISK LODE,
BOBTAIL LODE,
GROUND HOG LODE,
ENTERPRISE LODE,
and others,

In all, 8,625 feet (linear), and large water powers and mill sites.

Capital issued, 40,000 shares, at $10 per share.

A limited number of shares are offered at the low SUBSCRIPTION PRICE (having been reserved for their customers), by

WILLIAMS & MITCHEL, 12 Wall Street.

SAFEST AND CHEAPEST SYSTEM OF INSURANCE.

WASHINGTON
INSURANCE COMPANY
172 BROADWAY,
Cor. Maiden Lane, NEW YORK.

CASH CAPITAL, - - - $400,000.
Assets, June 1, 1864, - - - 600,000.

Scrip Dividend, 1863, - - 60 per Cent.
Scrip Dividend, 1862, - - 60 per Cent.
Scrip Dividend, 1861, - - 60 per Cent.

The Policies entitled to participate receive 75 per cent. of net Profits.

Insures Buildings, Merchandise, Furniture, Rents, Leases, against loss or damage by FIRE, and MARINE RISKS on LAKES, RIVERS and CANALS.

GEO. C. SATTERLEE, President.
HENRY WESTON, Vice Prest.
WM. K. LOTHROP, Secretary.
WM. A. SCOTT, Ass't Secretary.

SATTERLEE & CO.,
BANKERS
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Mining Stocks bought and sold at the Regular, Mining, Boston and Philadelphia Boards.

ALBERT H. NICOLAY,
STOCK BROKER AND
AUCTIONEER,
No. 52 William Street,
NEAR WALL ST., NEW YORK.
Special attention given to the Buying and Selling of Gas-Light Companies' Stocks.

PARTICIPATION.
ÆTNA FIRE INS.
COMPANY OF NEW YORK,
No. 170 B dway.

CASH CAPITAL, $200,000. CHARTERED 1824.

The insured receive seventy-five per cent. of the net profits annually, without incurring any liability. When preferred, a discount will be made in lieu of participation in profits.

Scrip Dividend of 1861, - - 50 per cent.
Scrip Dividend of 1862, - - 50 per cent.
Scrip Dividend of 1863, - - 50 per cent.

JACOB BROUWER, *President.*
H. C. BEACH, *Secretary.*
WM. BARBOUR, *Asst. Sec.*

Carrington & Co.'s

GENERAL

PURCHASING AGENCY,

In Connection with all the Expresses,

No. 40 Broadway,

NEW YORK.

Established 1854.

Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a seal-ring to a steam-engine.

Goods purchased at current City prices, and forwarded by Express, or as directed.

Commission, Five Per Cent.

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The Greatest Improvement in the Sewing Machine Art!

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They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

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IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.

No Wood-work to Swell or Split. No Thumb-screws to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog-wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, such there be; and we say to all, *test* Putnam Wringer. Test it *thoroughly* with *any* and *all* others, and if not entirely satisfactory, return it

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,
JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*
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PRICES—$8, $9, and $10.

Sample Wringers sent, express paid, on receipt of price.

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This Meter combines
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Manufacture Wrought Iron Welded Tubes for Gas, Steam or Water; Lap-Welded Boiler Flues, GALVANIZED WROUGHT IRON TUBES,

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Sewer Pipes extensively used in Brooklyn, and now introduced in New York, Jersey City, Newark, Hartford, Albany, and other localities, from 8 to 24 inches in calibre.

Water Pipes, lined and coated with Cement mortar, ready for laying and back filling, and can be tapped like cast-iron pipes, which they excel in durability, discharge, and economy.

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NON-FREEZING & NON-EVAPORATING FLUID,

For Filling Wet Gas-meters,

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Far Cheaper than any other Meter-fluid in use.

WARRANTED

Not to corrode tin, iron, brass, zinc, or drum-metal.

To be less injurious to wet meters that water.

Not to freeze at 20 degrees below zero, Fah.

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The summer is the proper time to fill them.

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MANUFACTURERS OF

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FOR SALE
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4 Cast-Iron round Purifiers, 4 feet 6 inches diamater, cast in one piece,—also grating and covers complete.

1. 4 inch Centre Seal.
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The above have been in use for some time, but are in good condition, and are now offered for sale through want of use.

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Now contract their works to make 10,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded;* and the charcoal is worth the cost of the wood.

Many Village Gas Companies can be referred to.

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Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.

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Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

Great Improvement
IN
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EMPIRE
SHUTTLE MACHINE!

Patented February 14th, 1860.

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This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather o the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbert.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

PRICE OF MACHINES,
COMPLETE:

No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60
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One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

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SEWING MACHINE

It is entirely noiseless.

A patented device prevents it being turned backward.

The needle cannot be set wrong.

It received the Gold Medal of the American stitute in 1863.

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Call universal attention to their

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KENT'S EAST INDIA COFFEE

Has all the flavor of OLD GOVERNMENT JAVA, and is but half the price; and also that

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has twice the strength of Java, or any other Coffee whatever and wherever used by our first-class hotels and steamboats—the stewards say there is a saving of 50 per cent.

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is the most healthy beverage known, and is very nutritious. The weak and infirm may use it at all times with impunity. The wife of the Rev. W. Eaves, local minister of the M. E. Church, Jersey City, who has not been able to use any coffee for fifteen years, can use

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three times a day without injury, it being entirely free from those properties that produce a nervous excitement.

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I advise my patients to drink it universally, even those to whom I have hitherto prohibited the use of Coffee.

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"I have used it nearly a year in my family, and find it produces no ache of the head or nervous irritation, as in the case of all other Coffees. It is exceedingly pleasant, and I cordially recommend it to all clergymen and their families."

KENT'S EAST INDIA COFFEE

is used daily by the families of Bishop Ames, Bishop Baker, Bishop James, and many of the most distinguished clergymen and professional men in the country."

Beware of Counterfeits!

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KENT'S EAST INDIA COFFEE,
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as there are numerous counterfeits afloat under the name of "Genuine East India Coffee," "Original East India Coffee," etc. put forth by imposters to deceive the unwary.

In 1 lb. packages, and in boxes of 36, 60, and 100 lbs., for Grocers and large Consumers. Sold by Grocers *generally.*

Orders from Country Grocers solicited, to whom a very liberal discount will be made.

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The Am. Adv. Agency, 308 Broadway, N. Y., will receive orders for the above named Coffee.

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SAVE YOUR MONEY!

The Cheapest, most Delicious and Healthy Coffee in the World!!

LEBIG'S
ESSENTIAL
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The most Healthy,
The most Economical,
The most delicious

PREPARATION OF COFFEE

IN THE WORLD,

OLD OR NEW.

This Coffee is prepared under a formula from the great German chemist,

PROFESSOR LEIBIG,

and gives the essential full strength and delicious flavor of OLD GOVERNMENT JAVA COFFEE, which is the only quality of Coffee used in its preparation, without any of that narcotic quality which so sadly damages the nervous system in the use of even the best grades of Coffee as ordinarily prepared.

2d. It gives the essential tonic and diuretic elements of Dandelion, without the "hereby," coarse taste so disgusting, and yet always found in the ordinary Dandelion Coffee.

It is known to all acquainted with chemistry, that the essence, or oil, or whatever name may be given it, when properly and scientifically obtained from any herb or plant, is a far different article from that produced by putting that plant into water and boiling it out—permitting the escape of the most exquisite and reliable strength and leaving the coarse and earthy drugs precipitated or in solution.

So this preparation combines the exquisite aroma of the Java Coffee, with the highest essential excellence of the most choice Dandelion—yielding the spirit without the grosser earthy body of both; thereby avoiding the deleterious effects of both and becoming at the same time

The most Delicious Beverage
AND THE
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Known in the world—being at once a sovereign remedy instead of producer of

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Flatulence, Fulness of the Head,
Dizziness, Costiveness, and
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and Kidneys,

because of its great Tonic and Diuretic qualities.

The simple fact that the preparation is from Baron Leibig, will commend it to the attention of the scientific in all parts of the country, while the use of it will at once and permanently prove to the masses everywhere that it is the long-needed desideratum—in its way.

The immense popularity of this Coffee in the Old World is an earnest that its use and popularity in America is bound to become continent wide.

Another consideration not to be overlooked in regard to the matter, is that

It Costs Less than Ordinary Green Coffee,

And requires less than half the quantity to give the same degree of strength, and its use proves it at 30 cents a pound to be cheaper than Maricaibo coffee at 15 cents a pound.

Neatly packed in pound papers, with full instructions for use on each label—in SIXTY POUND BOXES. Price, 30 cents per pound. A liberal discount to the trade.

Manufactured by the PEOPLE'S PROVISION CO., 25 Chambers street, N. Y., to whom all orders may be addressed.

Sold by wholesale Grocers and

Glycerin for Gas Meters.

This article is superior to any fluid ever before used for Wet Meters, and we cannot better set forth its advantages than by giving the following letter from the Superintendent of the Covington Gas Co. The superiority of our Glycerin over all others in the market, for this purpose, is admitted by every Company that has used it. We have sold, the past winter, to the Cincinnati Gas-Light and Coke Co.; to the Gas Companies of Covington, Ky.; Dayton, Springfield, Portsmouth, Urbana, and Piqua, Ohio Richmond, Ind., and Buffalo, N. Y, to whom we refer.

Glycerin is much cheaper than Whisky is now, or likely to be hereafter, and not evaporating, greatly increases the economy of its use.

OFFICE OF THE COVINGTON GAS-LIGHT CO.
COVINGTON, KY., Feb. 18, 1864.

MESSRS. W. J. M. GORDON & CO.:

Dear Sirs,—It affords us great pleasure in testifying to the superiority of the Glycerin Fluid purchased from you for filling the Wet Meters now in use by the Covington Gas-Light Company.

The difficulty of finding a non-evaporating and anti-freezing mixture for Wet Meters, has, in my opinion, been overcome by the use of your Glycerin Fluid.

I have had it in constant use for the past four months, and during that period the thermometer has ranged as low as 14° below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

Its non-evaporating quality does away with the hitherto unavoidable expense of filling the Meters monthly, and renders Wet Meters no longer objectionable.

In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

Very respectfully,
S. S. STRATTON, *Sup't Cov. Gas Co.*

We have been engaged in Manufacturing Glycerin the past six years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country. We will be pleased to quote prices or to give further information.

W. J. M. GORDON & BRO.,
MANUFACTURING
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ATLAS
OF THE
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The extraordinary developments of the last few years have rendered indispensable to the community, A NEW and RELIABLE map of that portion of Pennsylvania, known as the OIL REGIONS. And such a Map, in the form of an Atlas, made from actual surveys of the whole territory (and the only surveys that have been made in the territory,) is now being prepared for publication by the undersigned, to which your special attention is invited. In will embrace the whole of VENANGO and portions of CRAWFORD and WARREN Counties, and is designed to be the most complete and perfect work of the kind ever published, showing distinctly—

1 A general map of Venango and parts of Warren and Crawford counties, Penn., and enlarged plans of each township.

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A limited number of business cards pertaining to the production or sale of oil, or oil territory, will be received, and if early application be made, parties may have views of their establishments, or wells, with brief notices of the same, inserted.

The surveys for the Atlas are completed, and the proprietors intend to have it ready for delivery to subscribers (only) by about the 1st of January next.

All persons or firms desiring the work are requested to send their names as subscribers to the undersigned before the 1st of December, and designate the number of copies wanted, and the place where they wish them delivered.

F. W. BEERS & CO
43 John St., New York,
or Franklin, Penn.

Franklin, Penn, Oct. 20, 1864.

New York, April 18th, 1864.

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

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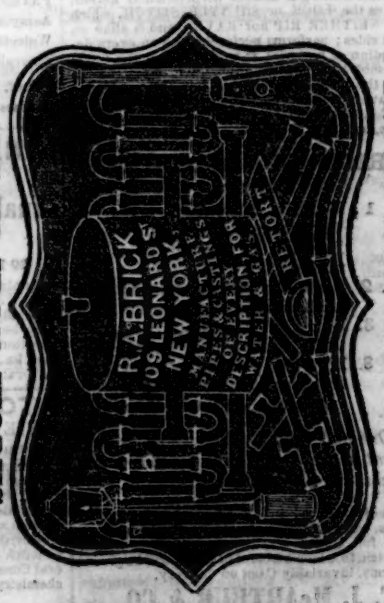

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